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United States
Department of
Agriculture

**Forest
Service**

and

United States
Department of the
Interior

**Bureau of
Land Management**

1985 Grazing Fee Review and Evaluation

Draft Report

PREFACE

MANDATE FOR THE GRAZING FEE STUDY

The Public Rangelands Improvement Act (PRIA) of 1978 (P.L. 95-514; 92 Stat. 1803) established the current formula for determining the grazing fee to be charged on public rangelands for a 7-year trial basis from 1978 through 1985. The PRIA requires the Secretaries of the Interior and Agriculture to report to Congress by December 31, 1985, ". . . their evaluation of the fee established in section 6 of this Act [PRIA] and other grazing fee options, and their recommendations to implement a grazing fee schedule for 1986 and subsequent grazing years."

ORGANIZATION OF THE REPORT

The report is organized in three parts. Part 1, Chapter 1, provides an overview of the grazing fees on public rangelands; the public land sector of the western livestock industry and the role played by the Bureau of Land Management (BLM) and the Forest Service; the revenues and costs associated with range management; and the law and policy that establishes a basis for grazing fees. Information on the appraised market rental value is presented in Chapter 2.

Part 2 provides an evaluation of the PRIA fee formula and alternative fee formulas that are examined. Chapter 3 contains the evaluation of the current fee system. Alternative fee systems are presented in Chapter 4. These fee systems are then evaluated in Chapter 5. Appendix A describes the economic effects of alternative grazing fee levels. Appendix B presents important background data relative to understanding the issue.

Part 3 of the report will be prepared after the BLM and the Forest Service have obtained comments on the draft. The Secretaries will make their recommendations to the Congress after reviewing the public comments received. The recommendation may be any appropriate fee schedule that would result in an overall reasonable grazing fee. The schedule may be a single westwide fee, a variable fee based upon pricing areas, or a variable fee based upon a composite of combined and individual pricing areas.

PUBLIC PARTICIPATION

Public participation is important in the preparation of the final report to Congress. Comments on the draft report may be submitted in writing to:

Grazing Fees
FS/BLM Central
324 25th Street
Ogden, Utah 84401

TABLE OF CONTENTS

PART 1 - BACKGROUND FOR GRAZING FEE STUDY

Chapter 1. Introduction 1

PRIA Evaluation Requirements 1
Historical Background 2
Grazing Fees and Permit System 2
Western Livestock Industry 3
Revenues and Costs of Rangeland Management 5
Law and Policy which Guide Fees 7

Chapter 2. Appraised Market Rental Value of Grazing on Public Rangelands 9

Scope of the Appraisal 9
Appraisal Process and Conclusions 9

PART 2 - EVALUATION OF ALTERNATIVE GRAZING FEE SYSTEMS

Chapter 3. Current (PRIA) Fee System 13

Basis of Formula 13

Evaluation of the Formula 14
Role and Effects of the Combined Index 14
$1.23 Base Value 17
Comparison of PRIA Fees with Appraised Market Value and the 1969 Fee System, 1979 to 1983 18

Evaluation and Improvement of Formula Indexes 19
Forage Value Index (FVI) 19
Beef Cattle Price Index (BCPI) 21
Prices Paid Index (PPI) 23
Alternative Index Weights 25
Alternative Base Periods 25
PRIA Formula Construction 26

Chapter 4. Identification and Evaluation of Grazing Fee Options 27

Grazing Fee Systems Considered 27

Modified PRIA Fee System 28
Description 28
Application 29

Nonfee (Differential) Costs Fee System 30
Description 30
Application 31

Livestock Price Fee 32
Description 32
Application 32

Modified Market Value Fee System 33
Description 33
Application 34

Competitive Bid 35
Description 35

Administrative Implementation Schedules 35

Chapter 5. Evaluation of Alternative Fee Systems Against Criteria . . . 37

Equity to the U.S. Government 37

Permittee Impacts 40

Equity Among Livestock Producers 42

Administrative Feasibility 43

Consideration of Nonfederal Government and Community Interests 44

Multiple-Use Considerations 45

PART 3 - PUBLIC COMMENT

Appendix A. Effects of Fee Level Changes on States, Selected Local Economies, and Grazing Permittees 46

Permittee Income Effects 46
Aggregate Impact 48
Level of Dependency 48
Livestock Price Cycles 49
Livestock Herd Size 49
Ability to Borrow Operating Funds 50
Effects on Permittee Asset Value 50

County and State Effects 51
Unlimited Ability to Borrow 52
Reduced Access to Capital 52
Worst Case County Analysis 54

Appendix B. Technical Figures

B.1 BLM Public Rangelands in the Western United States 56
B.2 Forest Service Public Rangelands in the Western United States 57
B.3 Information on Purchasing Grazing Fee Study Background Studies 58
B.4 Historical Summary of Grazing Fee Events 61
B.5 Summary of Vacant Allotment Information, Forest Service and BLM 64
B.6 Number of Public Land AUM's by State, 1983 65
B.7 Forest Service Maintenance Expenditures by Permittees, by Region, 1979-1983 66
B.8 Difference Between Private Leased and Public Grazing Lands 67

B.9 Summary of Public and Private Costs Per Animal Unit Month for Grazing in the Western States, 1966 69
B.10 Percent of Beef Cattle Marketings, Percent of Private Leases Reported by AUM, and Percent Combined Forest Service--BLM AUM's 70
B.11 Construction of the ICI 71
B.12 Comparison of National Prices Paid for Production Index (PPI), PRIA's Prices Paid Index (PRIA-PPI), Consumer Price Index (CPI), and the Input Cost Index (ICI) 72
B.13 Number of Acres of Government Grazing Lands and the Combined Average of State, Local, and Federal Agency Grazing Fees 73
B.14 Grazing Fees Collected by State Land Boards or Education Departments for 1981 74
B.15 Summary of Statistics for State Wildlife Agencies and Other Federal Agencies, 1981 75
B.16 Fee and Nonfee Costs for Idaho 76
B.17 Fee and Nonfee Costs for Oregon 76
B.18 Fee and Nonfee Costs for Nevada, Wyoming, and the Black Hills National Forest, South Dakota 77
B.19 Fee and Nonfee Costs—Weighted Average, BLM and Forest Service 77
B.20 Examples of Values Obtained in Livestock Price Formula Under Different Assumptions of Percent to Government and Calf Weights 78
B.21 Bureau of Land Management Administrative Units in Relationship to Pricing Areas 79
B.22 Forest Service Administrative Units in Relationship Pricing Areas 80

GLOSSARY 81

REFERENCES 83

FIGURES

1.1 Distribution of Beef Cattle and Beef Cattle Producers in the United States 3
1.2 Distribution of Cattle and Horse Operators by Herd Size, 1982 . 4
1.3 Permittee Contributions for Range Improvements, 1979 to 1983 . . 6
1.4 BLM and Forest Service Costs and Grazing Fee Receipts, 1982 to 1983 6
1.5 Laws that Guide Grazing Fee Policy 8

2.1 Westwide Pricing Areas: Mature Cattle, Horses, and Yearling Cattle--Pricing Areas 1 through 6; Sheep--Entire Westwide Area 11
2.2 Appraisal Value Conclusions 12

3.1 Data Used to Compute Grazing Fees with PRIA Formula and PRIA Values 14
3.2 A Comparison of the PRIA Formula and the FVI 15
3.3 Comparison of PRIA and Permittee Net Returns 16
3.4 Summary of the Results of the 1966 Western Livestock Grazing Survey 17
3.5 Comparison of the PRIA Fee with the Appraised Market Value and the 1969 Grazing Fee System 18
3.6 Comparison of PRIA and 1969 Fee Rates with the Appraised Market Value 19
3.7 Comparison of the Appraisal Values for Private Grazing Lease Rates and the June Enumerative Survey Values, 1978 to 1983 20
3.8 Comparison of the Percent of AUM's, the Percent of Private Grazing Land Leases, and the Percent of Beef Cattle in the 11 Western States and the 5 Great Plains States 21
3.9 Monthly U.S. Prices of Livestock by Type, 1977 to 1984 22
3.10 Comparison of the Factors Used in the National and the PRIA Prices Paid Indexes, and the Proposed Input Cost Index 24
3.11 PRIA and the 1969 Formula Fee Values and PRIA Computed Using the ICI 24
3.12 Comparison of Alternative Weightings of the Private Grazing Land Lease Rate and the Beef Cattle Price Index, 1983 25
3.13 Comparison of the PRIA Formula, the PRIA Formula Using a Ratio of the Combined Index, and the FVI 26

4.1 Grazing Fee Systems Reviewed in Formulating Alternatives to the PRIA Fee System 27
4.2 Computation of Indexes for Improved PRIA, Nonfee Costs, and Modified Market Value Fee Formulas, 1980 to 1985 29
4.3 Westwide Values of the Modified PRIA Fee Formula, 1981 to 1985 . 29
4.4 Modified PRIA, Pricing Area Application, 1981 to 1985 29
4.5 Westwide Values of the Nonfee Costs Fee Formula, 1981 to 1985 . 31
4.6 Derivation of Economic Base Value for Pricing Areas 31
4.7 Nonfee Costs Pricing Area Application 31
4.8 Calf Prices and 5-Year Average Calf Prices 33
4.9 Livestock Price Grazing Fee, 1981 to 1985 33
4.10 Westwide Modified Market Value Fee System, 1981 to 1985 34
4.11 Modified Market Value Grazing Fee Formula, 1981 to 1985 Grazing Fee Year 34
4.12 Fee Level Changes to Eliminate Differences in the 1983 PRIA Fee and the 1983 Modified Market Value (Westwide and Area 5) 36

5.1 Westwide Grazing Fee System Values, 1983 37
5.2 Westwide Fee System Values 1981 to 1985 38
5.3 Revenues Received from Grazing Fee Alternatives Compared to Agencies Costs, 1983 38
5.4 Variable Grazing Fee Application by Pricing Area 39
5.5 Summary of the Differences in Costs of the Fee Systems 40
5.6 Changes in Permittee Returns Above Cash Costs, 1983 Fee Values 41
5.7 Comparison Between Grazers on Federal and Private Lands 42
5.8 Percent Change in Herd Size at Varying Fee Levels 43
5.9 Changes in State Income as a Result of Changes in the Grazing Fee 44
5.10 Range Betterment Funds (50 Percent of the Grazing Fee Receipts 45

A.1 Geographic Locations Represented by Livestock Budgets 46
A.2 Changes in the Returns Above Variable Cash Costs for an Average Livestock Operation at Different Grazing Fee Levels, 1982 47
A.3 Economic Impacts of Alternative Grazing Fee Levels on Livestock Operators in All States - Cattle and Sheep 48
A.4 Average Dependence Level of Permittee Livestock Businesses on Public Rangelands for Annual Feed Supply in 13 Western States, 1982 49
A.5 Impacts of Alternative Grazing Fee Levels on Cattle Enterprise's Returns Above Variable Cash Costs of Public Rangeland Permittees 50
A.6 Value of the Public Land Permit Observed in the Grazing Rental Appraisal 51
A.7 Summary of Changes in Total Regional Incom of Alternative Fee Levels (cattle enterprises, thousands of 1977 dollars) . 53
A.8 Effects of Ability to Borrow Restrictions and Grazing Fee Increases 54
A.9 Estimated Total County Income Loss and Percent Loss of Total County Income as the Result of Grazing Fee Increases Under the Herd Production Response, 1982 dollars 55

PART 1 - BACKGROUND FOR GRAZING FEE STUDY

CHAPTER 1. INTRODUCTION

The Bureau of Land Management (BLM), U.S. Department of the Interior, and the Forest Service, U.S. Department of Agriculture, administer livestock grazing on approximately 307 million acres of public rangelands located within the 16 Western States covered by the Public Rangelands Improvement Act (PRIA) of 1978. About 57 percent of this acreage is administered by the BLM and 43 percent by the Forest Service. (Maps showing the location of BLM and Forest Service rangelands are in Appendix B, Figures B.1 and B.2.)

The Western States have about 70 percent of the forests and rangelands in the 48 contiguous States, but they provide 91 percent (720 million acres) of the total public and private range grazed. In 1982, the public lands sector of the western livestock industry used about 17.6 million animal unit months (AUM's) of Federal grazing, which represented 17 percent of the range forage consumed by beef cattle in the 16 Western States. The public rangelands are divided into more than 30,000 allotments, ranging in size from less than 40 acres to more than 1 million acres.

PRIA EVALUATION REQUIREMENTS

In 1978, the PRIA established the formula for determining the grazing fee to be charged on the public rangelands. The formula, which retained the 1966 base value of $1.23, is adjusted by annual changes in the private grazing land lease rate together with annual fluctuations in the costs of beef production and the prices received for beef. (See Chapter 3 for explanation of the formula.) By including the indexes of the costs of beef production and beef prices, Congress intended to implement a formula based, in part, upon a permittee's ability to pay. The House report stated that this would help prevent ranchers who depend on public land use from being forced out of business by the combined pressures of high production costs and low beef prices. The report went on to say that a lower fee would contribute to improved range condition by encouraging private investment and discouraging overgrazing and trespassing.

The PRIA formula, however, was not exempt from the public controversy traditionally surrounding public land grazing fees. In House Report No. 95-1122, "Improving the Range Conditions of the Public Grazing Lands," the House Committee on the Interior and Insular Affairs acknowledged and responded to the controversy in the following passage:

> "The Committee is aware, however, that many groups and individuals concerned with the improvement of the range disagree with the concept of pegging grazing fees to beef prices and the ranchers' ability to pay, and do not believe lower fees will eliminate overgrazing . . . .
>
> "To accommodate these concerns, the committee agreed to put its formula on a 7-year trial basis only, from 1979 to 1985. This 7-year trial period will give all sides an opportunity to study the effects of tieing the fee to beef prices, and also allow the Secretaries to refine their data on the value of Federal grazing lands as compared to privately owned lands."

At the end of the trial period, the Secretaries are required to report to Congress on this issue and to recommend a fee schedule for 1986 and subsequent grazing years.

Specifically, the four tasks the agencies undertook were:

(1) an appraisal of the public rangelands to estimate the rental value of public lands for grazing;

(2) an evaluation of the PRIA grazing formula with specific emphasis on the forage value index, the beef cattle price index, and the prices paid index;

(3) an identification and evaluation of other governments' grazing fees; and

(4) an analysis of the economic impact of grazing fee systems on the public land-based livestock industry, selected counties, and States in the western United States.

Information on purchasing copies of the background studies conducted in support of the fee study is provided in Appendix B, Figure B.3.

HISTORICAL BACKGROUND

Grazing Fees and Permit System: Fees were first charged for grazing on Forest Reserves by the Forest Service in 1906. Fees were not charged on public domain lands (which later became the lands administered by the BLM) until 1936, 2 years after the passage of the Taylor Grazing Act. A summary of the history of grazing fees on the BLM and the Forest Service is shown in Appendix B, Figure B.4.

Grazing fees for the BLM and the Forest Service were established on different bases until 1969, when both agencies implemented a fee system based on the Western Livestock Grazing Survey of 1966. The value determined through the 1966 survey was $1.23 per AUM. The goal of both agencies was to bring their fees to the $1.23 level in 10 years by a series of 10 equal adjustments, while at the same time adjusting for the current level of private grazing land lease rates. The fee system lasted from 1969 until the passage of the PRIA in 1978, although four fee moratoriums occurred in this period as a result of congressional or Executive actions. The fee system established under the PRIA was the first to be legislated by the Congress instead of established by the Secretaries.

Grazing use on the public rangelands was originally established on the basis of prior use. Other qualifications currently include: (1) ownership or control of sufficient base ranch property to provide feed for animals during the time they are not grazed on public rangelands, and (2) need for additional grazing to round out yearlong ranching operations.

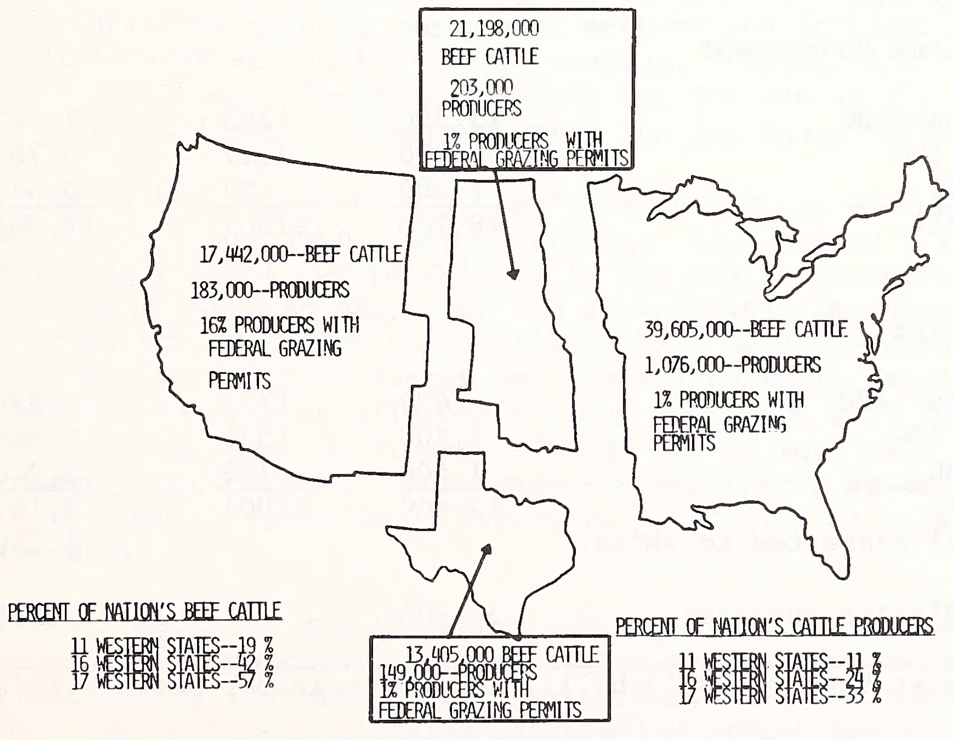
Less than 2 percent of the BLM and Forest Service allotments are vacant. Vacancy is more pronounced in sheep allotments (4 percent) than cattle allotments (1 percent). Vacancy by agency and State is shown in Appendix B, Figure B.5.

The Forest Service and BLM require that permittees manage livestock to conform to prescribed plans, developed in consultation with permittees, which specify the number of animals to be grazed and the period during which grazing can occur. Grazing permits or leases are for a 10-year period. Current holders of the permits generally have first priority for renewal.

Western Livestock Industry: During the 1982 grazing year, approximately 31,000 farmers and ranchers had livestock grazing on the public rangelands, with about 15 percent of these producers grazing livestock on both Forest Service and BLM lands. These 31,000 farmers and ranchers represent 8 percent of the 386,000 livestock producers in the 16 Western States and 2 percent of the 1.6 million cattle producers in the United States. In 1982, 17.6 million AUM's, of the 21.6 million potential AUM's identified in the "Fair Market Grazing Rental Appraisal," were grazed on public lands in the Western States. This level of use represents 8 percent of the nation's total rangeland forage and 2 percent of the total feed consumed by cattle in the United States. The distribution of beef cattle, beef cattle producers, and permittees is shown on Figure 1.1. (The number of Forest Service animal months (AM's) and BLM AUM's by State is shown in Appendix B, Figure B.6. An explanation of the conversion factors used is also provided in that Figure.)

While the Western States do not dominate the Nation's livestock industry, the relationship between the western livestock industry and the availability of public range is important both regionally and locally. The importance of public range also varies by the type of animal being grazed. Nearly half the sheep producers who own more than 2,500 head of sheep use Federal range, which provides about 42 percent of their annual forage requirements. The Forest Service and the BLM together supply 17 percent of the forage consumed by beef cattle in the Western States. About one-third of the beef cattle in the Western States graze at least part of the year on public rangelands.

Figure 1.1: Distribution of Beef Cattle and Beef Cattle Producers in the United States



DISTRIBUTION OF BEEF CATTLE AND BEEF CATTLE PRODUCERS IN THE UNITED STATES, 1983

Public grazing is a highly significant portion of total grazing in some Western States. For example, 88 percent of the cattle produced in Idaho, 64 percent in Wyoming, and 63 percent in Arizona graze at least part of the year on public rangelands. (Dependency on public land grazing of both cattle and sheep operators is discussed in Appendix A.)

In numerous local areas in the West, the operating size of many livestock operations often is affected by the amount of Federal range available during seasons of feed shortage on privately owned lands. Such critical periods may occur in the fall prior to hay feeding, in the summer when forage on private lands is low in nutritive value compared to forage on Federal ranges at higher elevations, and in the spring when private lands are needed to produce next winter's feed.

The size of the livestock operations dependent upon the Federal rangelands varies. Figure 1.2 shows public rangeland grazing by herd size for cattle and horse permittees for both the Forest Service and the BLM. While over 70 percent of BLM permittees have less than 100 head, only 35 percent of the Forest Service permittees have less than 100 head. About 5 percent of the largest BLM permittees use 47 percent of the BLM AUM's, while 12 percent of the Forest Service permittees use 41 percent of the Forest Service AUM's.

The availability of public rangelands helps promote the stability of family farms and ranches. The availability of public range forage contributes to the livelihood of full-time operators who are substantially dependent on it for livestock forage. For part-time operators, the public range may help maintain livestock operations that supplement family income. In many western communities, livestock farming and ranching operations continue in their traditional role of providing the primary economic base.

Figure 1.2: Distribution of Cattle and Horse Operators by Herd Size, 1982

Herd Size	Number of Permittees	(%)	Number of AUM's	(%)
Bureau of Land Management				
Less than 100	13,700	(73)	1,945,200	(18)
100 to 500	4,000	(21)	3,782,200	(35)
Over 500	1,000	(5)	5,079,200	(47)
BLM Total	18,700	(100)	10,806,400	(100)
Forest Service				
Less than 100	4,400	(35)	896,200	(11)
100 to 500	6,700	(53)	3,910,700	(48)
Over 500	1,500	(12)	3,340,400	(41)
FS Total	12,600	(100)	8,147,300	(100)
FS Total converted to AM's*			6,789,500	
Total for Billing Purposes	31,300		17,595,800	

*Divide Forest Service AUM's by 1.2 to derive Animal Months (AM's) for billing purposes.

REVENUES AND COSTS OF RANGELAND MANAGEMENT

Permittees and lessees are charged for public rangeland grazing use according to the number of AUM's of forage they are authorized to use. In Fiscal Year 1982, grazing fee collections totaled $31,634,000, which was distributed as follows: $15,817,000 was deposited to the Range Betterment Fund; $6,428,000 was returned to the States and counties in which it was collected; $1,076,000 was allocated for forest roads and trails; $538,000 was allocated for special assessments; and $7,775,000 was retained by the U.S. Treasury.

Grazing fee receipts are distributed according to legislative requirements. The Forest Service distributes its grazing fee receipts as follows: 25 percent is allocated to the States for distribution to the county of origin; 25 percent goes to the U.S. Treasury; and 50 percent goes into the Range Betterment Fund. The Range Betterment Funds are returned to the Forest Service Region of origin, with half the funds returned to the Forest where the fees were collected and the remaining amount distributed among the Forests at the discretion of the Regional Foresters. State and county receipts provide support for schools and roads.

Grazing fees collected by the BLM are distributed as follows. Under Section 3 (grazing permits) of the Taylor Grazing Act of 1934: 50 percent is distributed to the Range Betterment Fund; 12.5 percent goes to the States in which the fees were collected; and 37.5 percent goes to the U.S. Treasury. Under Section 15 (grazing leases) of the Act, 50 percent of the fees collected is distributed to the Range Betterment Fund and 50 percent is returned to the State. Range Betterment Funds are returned to the BLM District where they were collected. Although BLM State Directors may redistribute funds among Districts to meet short-term needs, each District must receive its full proportional share of Range Betterment Funds within a 5-year period.

The Forest Service and the BLM use the Range Betterment Funds, other appropriated funds, and contributions to improve the public rangelands through implementation of intensive grazing management methods and initiation of improvement practices such as brush control, seeding, fencing, and the development of water sources. The U.S. Treasury has the use of the funds for approximately 1 year until they are appropriated for the Range Betterment Fund.

Permittees and lessees may cooperate with improvement efforts through contributions of money, time, labor, and materials. Each agency's regulations provide for private investment, where this is in the public interest. Permittee contributions averaged $0.16 per AUM toward range improvements during the PRIA trial period. (See Figure 1.3.) Both agencies require permittees and lessees to maintain fences and other structural improvements that benefit livestock on grazing allotments. For the years 1979 to 1983, Forest Service permittees spent an average of $.30 per AM each year on maintenance of range improvements. (Maintenance expenditures by Forest Service Region are shown in Appendix B, Figure B.7. No similar data are available for the BLM.)

Permittee cooperation is an essential element in implementing improved grazing management systems. Maintenance of improvements by range users allows the limited appropriated funds (including Range Betterment Funds) to be used for new construction. The policy of allowing private investment hastens the improvement of public rangeland condition.

Figure 1.3: Permittee Contributions for Range Improvements, 1979 to 1983

Agency	1979	1980	1981	1982	1983	Total
	Dollars Contributed (000's dollars)					
BLM	$940	$1,213	$1,237	$1,258	$1,281	$5,930
FS	$1,259	$1,367	$1,531	$2,761	$1,451	$8,369
Total	$2,199	$2,580	$2,768	$4,019	$2,732	$14,299
	Dollars per AUM					
BLM	$0.09	$0.12	$0.12	$0.12	$0.12	$0.11
FS	$0.20	$0.24	$0.23	$0.25	$0.22	$0.21
Average	$0.14	$0.17	$0.17	$0.17	$0.17	$0.16

In addition to the funds that the agencies spend on range improvements, other costs of range management include those involved in planning, inventory, and program management. These costs are shown in Figure 1.4.

Figure 1.4: BLM and Forest Service Costs and Grazing Fee Receipts, 1982 to 1983

Cost Component	BLM 1982	BLM 1983	Forest Service 1982	Forest Service 1983
	Total Costs (000's dollars)			
Allotment Planning and Inventory	$6,439	$5,156	$4,917	$4,702
Management	$17,919	$18,302	$14,715	$14,061
Range Improvements	$5,500	$9,353	$9,822	$7,391
Total	$29,858	$32,811	$29,454	$26,154
	Grazing Fee Receipts (000's dollars)			
Total	$20,878	$14,484	$10,743	$9,743
	Receipts Minus Costs (000's Dollars)			
Total	- $8,980	- $18,327	- $18,711	- $16,411
	Costs per AUM ($/AUM)			
Allotment Planning and Inventory	$0.60	$0.50	$0.72	$0.68
Management	$1.68	$1.77	$2.15	$2.02
Range Improvements	$0.52	$0.90	$1.44	$1.06
Total	$2.80	$3.17	$4.31	$3.76

LAW AND POLICY THAT GUIDE FEES

Figure 1.5 lists the laws that guide the Administration's approach to grazing fees. Several of the laws described in Figure 1.5 refer to fees that are "reasonable." Many ranchers grazing livestock on the public rangelands believe that a reasonable fee must take into consideration the costs of purchasing a public grazing permit (from the existing permit holder) as a reasonable cost of grazing public lands. In 1968, Pankey Land and Cattle Company filed suit against the Secretaries of the Interior and Agriculture, seeking an injunction against the new fees claiming that they failed to meet the legal requirement of reasonableness because they failed to consider the costs of the permit. The U.S. District Court for New Mexico held in favor of the Secretaries, ruling that it had not been shown that they had failed to consider all of the factors "related to the reasonableness of the fees" when they did not include the value of the permit in the fee formula. The courts have also ruled that the Government is not obligated to compensate permittees for actions which reduce the permit value. (See Appendix A for a further discussion of permit value.)

Figure 1.5: Laws That Guide Grazing Fee Policy

Date	Law	Policy Statement
1978	Public Rangelands Improvement Act	(BLM and Forest Service) Established a fee on a trial basis, which Congress felt would represent the economic value of the land to the user. In establishing a fee based on economic value, Congress stated that "to prevent economic disruption and harm to the western livestock industry, it is in the public interest to charge a fee for livestock grazing . . . which is based on a formula reflecting annual changes in the costs of production."
1976	Federal Land Policy and Management Act (FLPMA)	(BLM and Forest Service) Declared that it is a general policy that ". . . the United States receive fair market value of the use of public lands and their resources unless otherwise provided by statute." The FLPMA also required the Secretaries to study the grazing fee issue and in making the study, "take into consideration the costs of production, . . . differences in forage values, and other factors which relate to the reasonableness of such fees."
1952	Independent Offices Appropriation Act	(BLM and Forest Service) Required agencies that provided goods and services to "be self-sustaining to the full extent possible. . . [and for the fees charged] to be fair and equitable taking into consideration direct and indirect cost to the Government, value to the recipient, public policy or interest served, and other pertinent facts . . . ." In interpreting this law, Office of Management and Budget, Circular 25, states "Where federally owned resources or property are leased or sold, a fair market value should be obtained. Charges are to be determined by the application of sound business management principles, . . . in accordance with comparable commercial pratices. Charges . . . may produce net revenues to the Government."
1934	Taylor Grazing Act	(BLM) Called for payment of a "reasonable fee" which required the Secretary of the Interior to account for "the extent to which such districts yield public benefits over and above those accruing to the users of the forage resources for livestock purposes."
1897	Organic Act	(Forest Service) "The Secretary of Agriculture should make such rules and regulations to regulate their [forests] occupancy and use . . ."

CHAPTER 2. APPRAISED MARKET RENTAL VALUE OF GRAZING ON PUBLIC RANGELANDS

In response to the congressional charge to "refine the data on the value of the public rangelands," the Forest Service and the BLM conducted a market rental appraisal. The appraisal report, entitled "Fair Market Rental Value of Grazing on Public Lands," is available for public purchase (see Appendix B). The two primary objectives of the appraisal were: (1) to establish a market value, which is the amount a livestock operator probably would pay for grazing use on the public lands if these lands were offered on the open market, and (2) to provide the information needed to compare that value with the public land grazing fees now derived through the current fee formula established by the PRIA.

SCOPE OF THE APPRAISAL

The field work portion of the appraisal spanned a 17-month period (July 1982 to November 1983). The field appraisers interviewed an estimated 100,000 persons and obtained detailed information on 80 to 90 percent of the transactions within the area surveyed. These interviews resulted in a transaction data base that contained 11,675 records. The 11,675 records contained 7,246 usable observations of different prices reflecting the results of open market negotiations between lessors and lessees for grazing use of lands by cattle, horses, yearling cattle, and sheep.

The appraisal covered 16 Western States, plus two counties in Texas, which were divided into six pricing areas (See Figure 2.1). Criteria for selecting the boundaries of the pricing areas included the following, in order of priority: (1) mean county prices for mature cattle and horses; (2) consideration of the natural vegetation, which reflects the influence of soils, climate, and land features; (3) physical or geographic features; and (4) political or administrative boundaries.

Data on 99 physical characteristics and lease terms and conditions that could affect value were collected for each lease. The 99 items were reduced or combined to form 81 potential value determining factors. The most important factors are shown in Appendix B, Figure B.8.

APPRAISAL PROCESS AND CONCLUSIONS

The appraisers used mass appraisal techniques that acknowledge the wide range of conditions on individual allotments on the public rangelands, which made it impossible to account for the differences between individual allotments or tracts. The value estimates presented do not represent the "site specific" fair market grazing rental value of any individual allotment. Rather, they are intended to represent a reasonable estimate of the rental value of grazing on the public rangelands. Appraised market value reflects the highest price that a property will bring if exposed to sale or rent in the open market with a willing seller (or lessor) and a willing buyer (or lessee)--both acting with knowledge of all of the uses to which the property is adapted and for which it is capable of being used, and neither being under abnormal pressure. The quantification of appraised value is based on this concept of market value.

In arriving at an estimate of the fair market rental value for grazing on the public rangelands within each pricing area, the use and conditions on the private leased lands were compared to the use and conditions on the public rangelands. Analysis of the data showed that from a pure "qualitative analysis" of different factors, any advantage the lessee of private lands might have over the public rangelands permittee/lessee as a result of the general lack of stipulations or restrictions on the private lease is at least partially offset by guaranteed tenure, rights of appeal, and option of nonuse for three years at no cost afforded on the public rangelands.

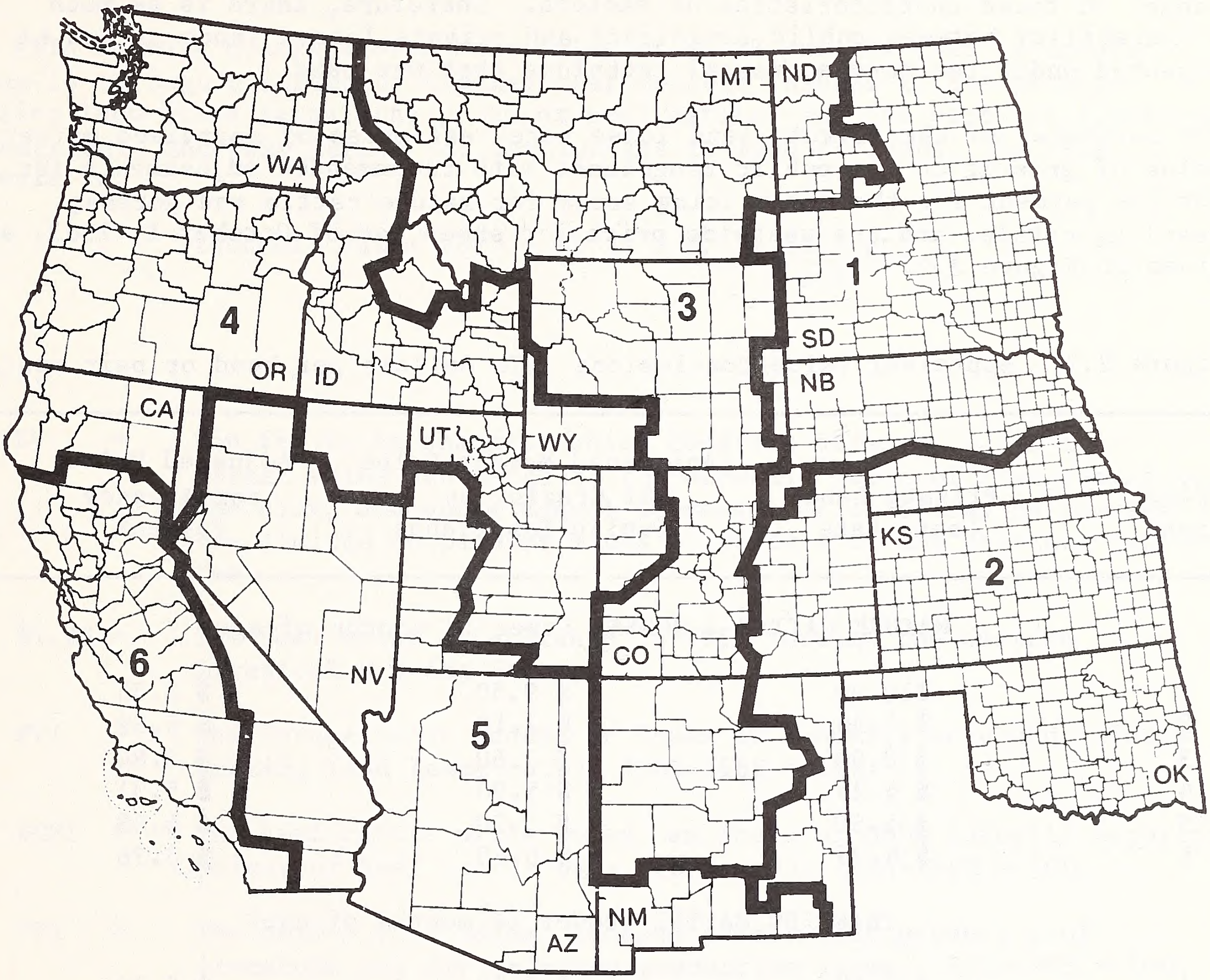
The analyses showed there were different prices being paid for different kinds and types of animals. They also showed there were differences in prices being paid in different geographic areas that could be attributed to broad differences in various factors that include location, seasons of use, and carrying capacity or quality of range. For example, prices being paid for typical spring-summer-fall grazing on lands stocked at 1-10 acres per AUM in South Dakota were 2 to 3 times the prices paid for year-round grazing on lands in the southwestern desert areas of New Mexico, Arizona, and Nevada on lands stocked at 20 to 40 acres per AUM.

The appraisers and the contracted private review appraisers concluded that the most appropriate and valid measure of the rental value of public land grazing was the average price of the negotiated leases. The value estimates are based on the indications provided by the 7,246 observations of the negotiated leases. Because of the wide range of prices shown by these observations, they further concluded the need to remove the extremes of highs and lows in prices by excluding the top and bottom 15 percent of the reported prices, thus leaving 70 percent of the data as the basis for estimating the fair market rental. Adjusting the observed prices in this manner resulted in lowering the appraised market value an average of 5 percent.

The appraisers also compared the westwide average prices paid on private leased lands to the westwide average prices paid for over 600 competitive and/or negotiated leases on approximately 9 million acres of Federal lands. These transactions did not involve the land owner's care or management of the livestock. The leases of Federal lands included competitive leases of military reservations, wildlife refuges, and reclamation lands; and subleases of lands administered by BLM and Forest Service. This showed an average price of $6.53 per month for the Federal lands compared to $6.87 for the non-Federal lands, indicating a -5 percent lower value for grazing on Federal lands than for the non-Federal lands. The -5 percent difference is attributed to a number of factors, including the general conditions of the permits or leases, differences in costs of operation, differences in desirability of use, etc.

The appraisers recommended an additional adjustment because of the different payment schedules that are authorized for use on public rangeland permits/leases. The appraisal data showed that private market transactions were discounted approximately 10 percent for advance payment. Generally, both agencies require partial or full payment in advance. The additional -10 percent adjustment resulted in a total -15 percent adjustment from the private grazing rates.

Figure 2.1: Westwide Pricing Areas: Mature Cattle, Horses, and Yearling Cattle--Pricing Areas 1 through 6; Sheep--Entire Westwide Area



BLM AUM's and Forest Service AM's by Pricing Area*

Pricing Area	BLM AUM's	FS AM's	Total	Percent of Total
1	196,558	194,424	390,982	2%
2	351,538	11,261	362,799	2%
3	4,352,997	2,782,956	7,135,953	33%
4	4,112,507	2,226,620	6,339,127	29%
5	4,351,845	2,673,227	7,025,072	33%
6	116,813	214,620	331,433	2%
Total	13,482,258	8,103,108	21,585,366	100%

* Numbers of AUM's and AM's reported in the appraisal, 1982 data
BLM AUM's correspond to Forest AM's

No adjustments were made for factors such as size (in acres, AUM's, number of head), quality of range (carrying capacity or stocking rate), improvements, availability and distribution of water, etc., for either or both of two reasons: (1) the transactions showed no difference in prices paid because of differences in these factors, and/or (2) the public rangeland allotments within each of the pricing areas exhibit broad ranges in physical characteristics and the private leased lands exhibit the same general, broad ranges in these characteristics or factors. Therefore, there is as much comparability between public rangelands and private leased lands as can be expected under the mass appraisal technique that was used.

The estimates of the private land lease rate, estimates of appraised market value of grazing on the public rangelands with recommended adjustments for advance payment for the six pricing areas for mature cattle and horses, yearling cattle, and the westwide price for sheep, as of October 1, 1983, are given in Figure 2.2.

Figure 2.2: Appraisal Value Conclusions (In dollars per head or pair month)

Price Area	Private Land Lease Rate	Appraised Market Value of Grazing on Public Rangelands	Adjusted Value for Advance Payment
	MATURE CATTLE & HORSES (over 18 months of age)		
1	$10.00	$ 9.50	$ 8.55
2	$ 7.50	$ 7.10	$ 6.39
3	$ 8.00	$ 7.60	$ 6.84
4	$ 6.25	$ 5.90	$ 5.31
5	$ 5.50	$ 5.20	$ 4.68
6	$ 6.75	$ 6.40	$ 5.76
	YEARLING CATTLE (Under 18 months of age)		
1	$ 7.50	$ 7.10	$ 6.39
2	$ 6.75	$ 6.40	$ 5.76
3	$ 6.25	$ 5.90	$ 5.31
4	$ 5.70	$ 5.40	$ 4.86
5	$ 5.50	$ 5.20	$ 4.68
6	$ 4.75	$ 4.50	$ 4.05
	SHEEP		
Westwide	$ 1.10	$ 1.05	$ .95

Part 2 - EVALUATION OF ALTERNATIVE GRAZING FEE SYSTEMS

CHAPTER 3. CURRENT (PRIA) FEE SYSTEM

BASIS OF FORMULA

The PRIA formula consists of a base value of $1.23 per AUM that is updated annually through a series of indexes that measure changes in the private grazing land lease rates, the price of beef cattle, and the costs of livestock production. The base period for the indexes is 1964 to 1968. The PRIA formula is:

$$\text{Economic Value (EV)} = \$1.23 \times \frac{\text{FVI} + \text{BCPI} - \text{PPI}}{100}$$

Where:

EV = The fee to be charged, which Congress defined as the fair market value and which is the economic value of the grazing to the user, and where annual increases or decreases in the fee are limited to plus or minus 25 percent of the previous year's fee.

$1.23 = The base value established in 1966 through the Western Livestock Grazing Survey.

FVI = The forage value index, an index of annually surveyed private grazing land lease rates, 1964-1968 = 100.

BCPI = The beef cattle price index, an index of USDA annually reported prices of beef cattle over 500 pounds, 1964-1968 = 100.

PPI = The prices paid index, indexed prices that producers of livestock pay for selected production items, 1964-1968 = 100.

The origin, concept, and performance of the PRIA grazing fee formula and its individual components are evaluated in this chapter. Comparisons of PRIA fees with the 1983 appraised market value and the former 1969 fee system and possible improvements to formula components are also discussed.

Figure 3.1 shows the formula indexes included in PRIA for the years 1964 to 1984 and the calculated PRIA value for public grazing fees. The PRIA formula, however, has only been operative since 1979. The data for 1964 to 1979 are included to provide a long-term perspective on the response of the PRIA formula to its indexes.

Figure 3.1: Data Used to Compute Grazing Fees with PRIA Formula and PRIA Values

Data Year	Private Grazing Land Lease Rate (PGLLR)	Forage Value Index (FVI)[1]	Beef Cattle Price	Beef Cattle Price Index (BCPI)[2]	Prices Paid Index (PRIA-PPI)[3]	PRIA Formula Values[4]
1964-1968	$3.65	100	$22.04	100	100	1.23
1969	3.82	105	27.00	123	113	1.41
1970	4.05	111	29.50	134	118	1.56
1971	4.06	111	29.50	134	124	1.49
1972	4.17	114	36.80	167	130	1.86
1973	4.57	125	43.00	195	140	2.21
1974	5.82	159	39.20	178	168	2.08
1975	5.75	158	35.20	160	198	1.48
1976	6.37	175	36.10	164	215	1.52
1977	7.06	193	36.00	163	230	1.55
1978	7.11	195	47.60	216	246	2.03
1979	7.53	206	64.90	294	275	2.77
1980	7.88	216	64.20	291	319	2.31
1981	8.83	242	59.10	268	359	1.86
1982	8.36	229	57.70	262	378	1.40
1983	8.85	242	56.40	256	387	1.37
1984	8.86	243	57.79	262	395	1.35

1 The annual PGLLR divided by the 1964-1968 base PGLLR of $3.65 and multiplied by 100 to convert to an index number.

2 The annual beef cattle price divided by the 1964-1968 base beef cattle price of $22.04 and multiplied by 100 to convert to an index number.

3 Index of prices paid by farmers and ranchers for inputs needed to produce beef from November through October of the data year and weighted to reflect beef production in the 11 Western States as reported by the Statistical Reporting Service.

4 PRIA values without applying plus or minus 25 percent limit on year-to-year change.

EVALUATION OF THE FORMULA

Role and Effects of the Combined Index: The intent of the PRIA formula was to adjust the $1.23 base value over time using the FVI to account for market changes and the difference between the BCPI and the cost of livestock production as measured by PRIA PPI to account for changes in the permittees ability to pay. The BCPI minus the PPI is the combined index and reflects short-term changes in the permittees' ability to pay, in addition to the ability to pay reflected in the FVI. A simulated comparison of the results of PRIA with the FVI is shown in Figure 3.2 for the years 1966 to 1978, and an actual comparison for 1979 through 1982 is shown. Tying grazing fees to ability to pay has reduced the return to the Government from the public rangelands since 1979. This can be seen in the spread that has occurred between private grazing charges illustrated by FVI and the PRIA grazing fee index.

Since 1979, the inclusion of the combined index has resulted in a sharp downward trend in the PRIA values. Figure 3.2 illustrates the difference between the index of private lease rates (FVI) and an index of PRIA. The PRIA also fell below FVI in the 1975 to 1978 period. From 1969 to 1974, the inclusion of the combined index would have resulted in greater revenues for the Government than would have occurred if only the FVI were considered. In 1979, the PRIA value was greater than use of the FVI alone would have justified. Thus, the application of PRIA from 1964 to 1974 and in 1979 would have reduced returns to permittees in that favorable market price and profit period due to the influence of the combined index. In those years when the PRIA was below the FVI, the public land permittees would have had a competitive advantage relative to other livestock producers who rented rangelands at market rates as reflected by the FVI. In years when the PRIA was higher than the FVI, the permittees would have had a competitive disadvantage.

Figure 3.2: A Comparison of the PRIA Formula and the FVI

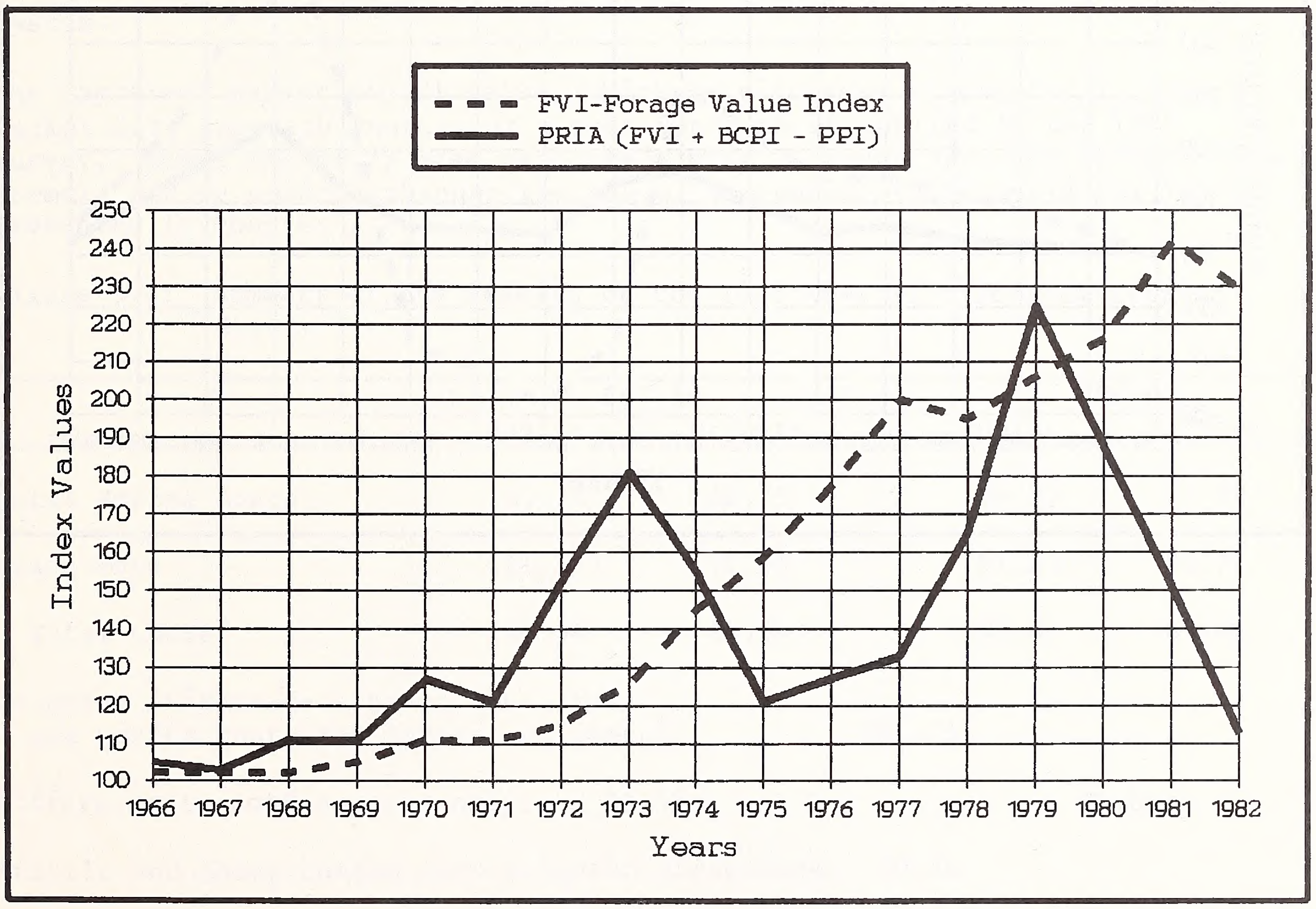
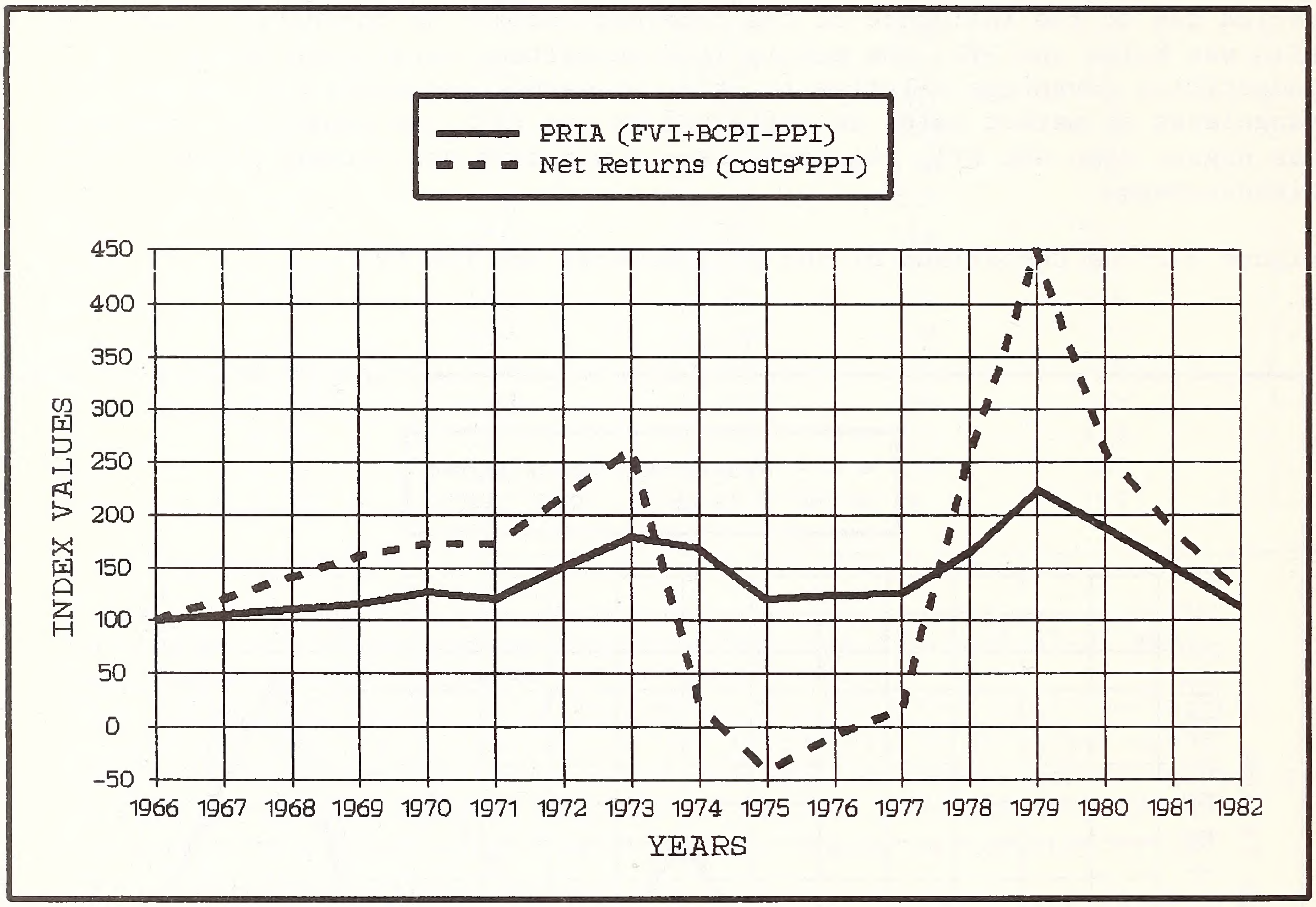


Figure 3.3 shows the ranchers' (permittees and nonpermittees) net returns computed as an index for the 1966 to 1982 period (1966 = 100). The net returns index was computed by the Economic Research Service (ERS) using livestock prices and costs computed by indexing current costs using the PRIA PPI. The PRIA formula follows the same general trends as the net returns and captures some of the annual variation and trend in the ranchers' ability to pay.

Figure 3.3: Comparison of PRIA and Permittee Net Returns



$1.23 Base Value: In 1966, the Statistical Reporting Service (SRS), U.S. Department of Agriculture, interviewed 10,000 individuals in a one-time Western Livestock Grazing Survey to obtain information on the fee and nonfee costs associated with the leasing of public and private grazing lands. This information was used in an economic model to estimate fair market value for public land grazing use. A summary of the results of the Survey is shown in Figure 3.4. Complete rancher costs determined by the 1966 Western Livestock Grazing Survey are shown in Appendix B, Figure B.9.

The numbers in parentheses in Figure 3.4, $1.26 and $1.13, are the values that equalize the costs of grazing the private leased lands and the public lands, or what the model represented as the fair market value of grazing public rangelands for cattle and sheep respectively. These results were weighted by the number of cattle and sheep AUM's to develop the $1.23 base value.

The base value of $1.23 used in the 1966 economic model was derived by subtracting nonfee differential costs of $.53 for cattle and an additional $.02 for sheep, or a total of $.55, in costs from $1.79, the estimate of the private grazing land lease rate found in the "1966 Western Livestock Grazing Survey of Private Grazing Land Lease Rates." Based on the annual survey by SRS from 1964 to 1968, the five-year average private grazing land lease rates was $3.65 per AUM. This average rate was used to form the FVI that was used as the annual adjustment mechanism in the 1969 Fee System and the PRIA Fee System.

The appraised market rental value, which is discussed in Chapter 2, uses a market data approach instead of a cost approach as applied in the 1966 Survey. Since the $1.23 base value is nearly 20 years old, the current PRIA formula can be updated through the use of the market value appraisal results presented in Chapter 2.

Figure 3.4: Summary of the Results of the 1966 Western Livestock Grazing Survey

	Cattle Public	Cattle Private	Sheep Public	Sheep Private
Total Nonfee Costs	$3.28	$2.75	$4.53	$3.89
Lease rate	($1.26)	$1.79	($1.13)	$1.77
Total Costs	$4.54	$4.54	$5.66	$5.66
Weighted difference between total fee and nonfee costs for cattle and sheep:		($1.23)		
Difference in nonfee costs only:	$0.53*		$0.64*	

*Cattle and Sheep nonfee cost weighted difference: $0.55

Comparison of PRIA Fees with Appraised Market Value and the 1969 Fee System, 1979 to 1983: A measure of the PRIA formula's performance for 1979 to 1983 is its closeness to market value for the public lands as measured by the grazing rental appraisal and its comparison with the former 1969 fee system. The 1969 fee system changed the 1964 to 1968 base value ($1.23) by an index of the annual change in private grazing land lease rates. Figure 3.5 shows PRIA's performance in relationship to the appraised market value and the 1969 grazing fee. The appraisal value is based on 16 Western States while the PRIA and the 1969 grazing fee values are based on 11 Western States. For the 5 years 1979 to 1983, the PRIA fees averaged 33.3 percent of the appraised market value, with a range from 45 percent in 1980 to a low of 21 percent in 1983. As shown in Figure 3.6, the differences for the years 1979 to 1983 between the PRIA rates and the appraised market value range from a low of $3.77 per AUM to a high of $5.25 per AUM or an average difference of $4.34 per AUM. For 1979 to 1983, the BLM and the Forest Service permitted an average of 17 million AUM's per year. The difference in the appraised market value and actual grazing fees paid under PRIA average $75 million per year in Government revenue foregone. Though the PRIA and 1969 System produced about the same fee in 1980, by 1985 the PRIA fee was less than half the amount the 1969 System would have produced.

Figure 3.5: Comparison of the PRIA Fee with the Appraised Market Value and the 1969 Grazing Fee System.

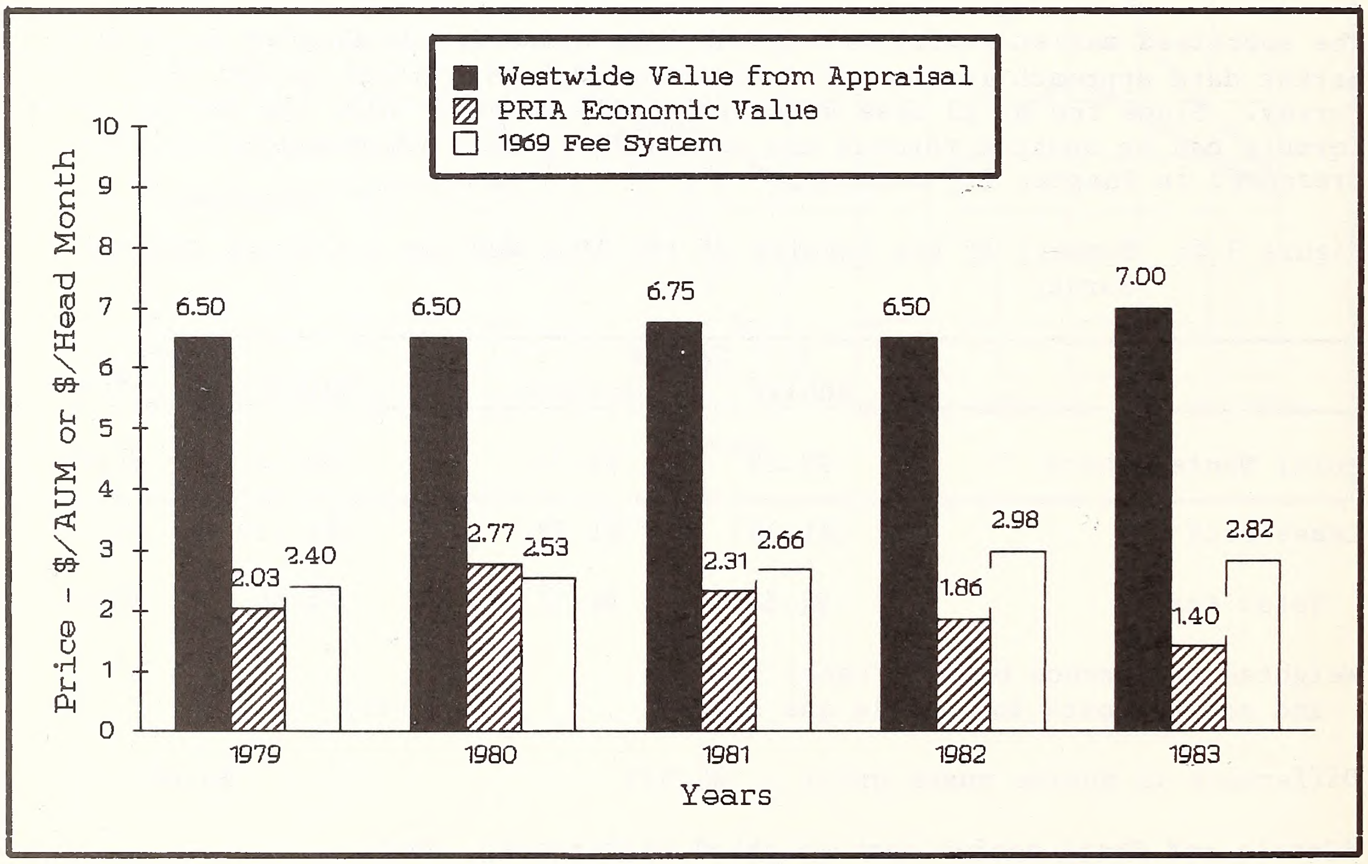


Figure 3.6: Comparison of PRIA and 1969 Fee Rates With the Appraised Market Value

Fee Year	PRIA Fee Rates $/AUM	Appraised Market Value $/Hd. Mo.	PRIA Minus Appraisal $/Hd. Mo.	1969 Fee System Value
1979	1.93	6.18	-4.25	2.40
1980	2.41	6.18	-3.77	2.53
1981	2.31	6.41	-4.10	2.66
1982	1.86	6.18	-4.32	2.98
1983	1.40	6.65	-5.25	2.82
1984	1.37	N/A*	N/A*	2.98
1985	1.35	N/A*	N/A*	2.99

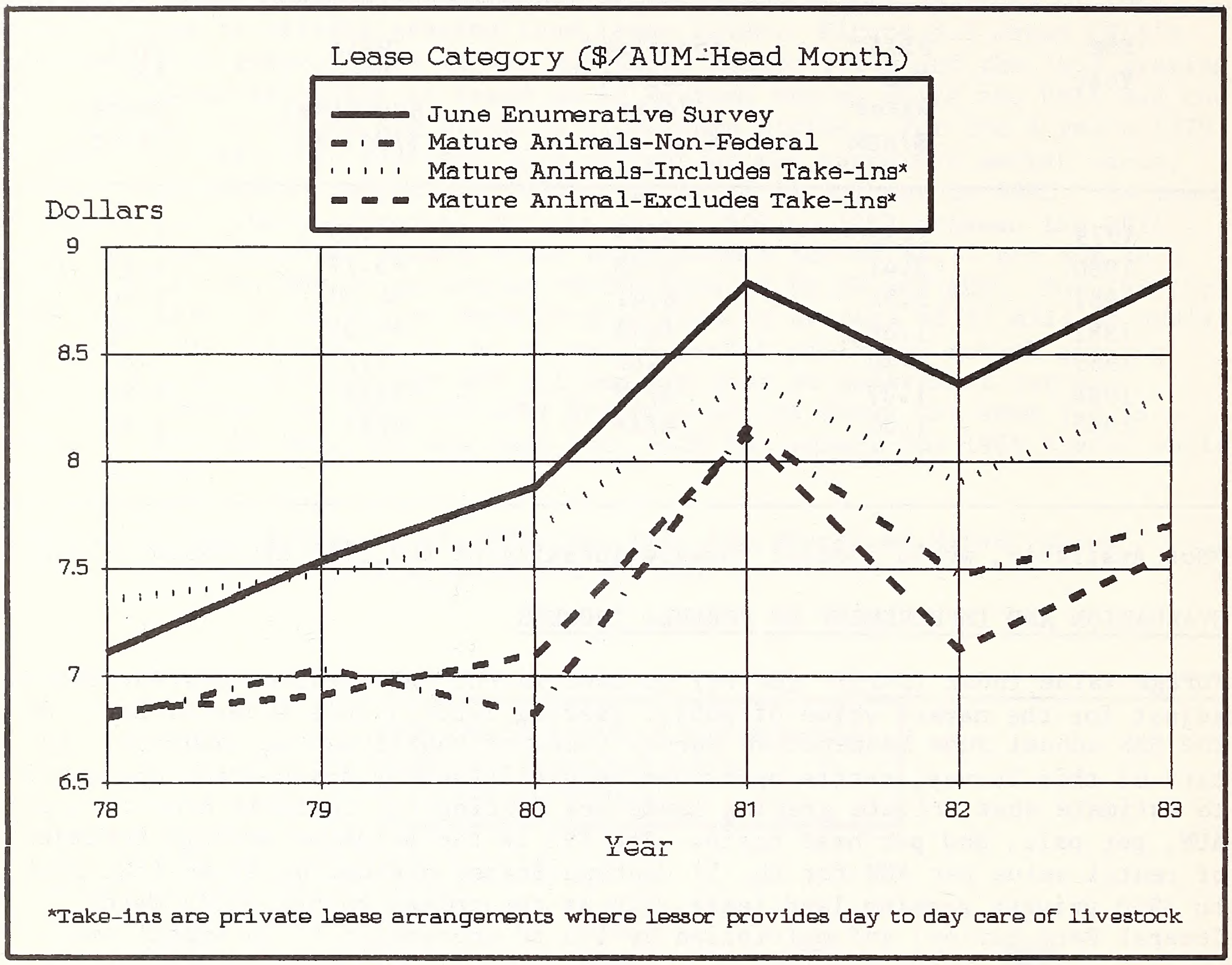
*Not Available, would require forward indexing of the 1983 appraised values.

EVALUATION AND IMPROVEMENT OF FORMULA INDEXES

Forage Value Index (FVI): The FVI is used in the PRIA grazing fee formula to adjust for the market value of public grazing lands. This index is based on the SRS annual June Enumerative Survey (JES) of the livestock industry. As part of this Survey, cattle operators in statistically drawn areas are asked to estimate what private grazing lands are renting for in their area on a per AUM, per pair, and per head basis. The FVI is the weighted average estimate of rental value per AUM for the 11 Western States divided by $3.65 (the 1964 to 1968 private grazing land lease rate as determined by the SRS's March General Farm Survey) and multiplied by 100 to convert it to an index number.

Concern has been expressed over the lack of accuracy of the FVI as a result of the lack of direct comparability between the quality of the land and the amount of services provided on the public and private grazing leases. This concern is partially offset by the fact that index numbers rather than dollar values are used in the PRIA formula so the FVI is a measure of the rate of change or trend in market value, and is not the absolute "fair market value." The accuracy of the JES was determined by comparing its results to the appraisal's results. This comparison showed that while the JES may be a poor measure of actual prices or trends in prices in any individual State, it is a good short-term indicator of the westwide trends for pasture rental for mature animals. Figure 3.7 illustrates the westwide correlation in the movement between the JES's estimated prices and the actual prices shown in the appraisal. A comparison of the JES and the appraisal also indicates that the JES's estimates on a westwide basis are fairly close to the prices being paid, but are consistently higher.

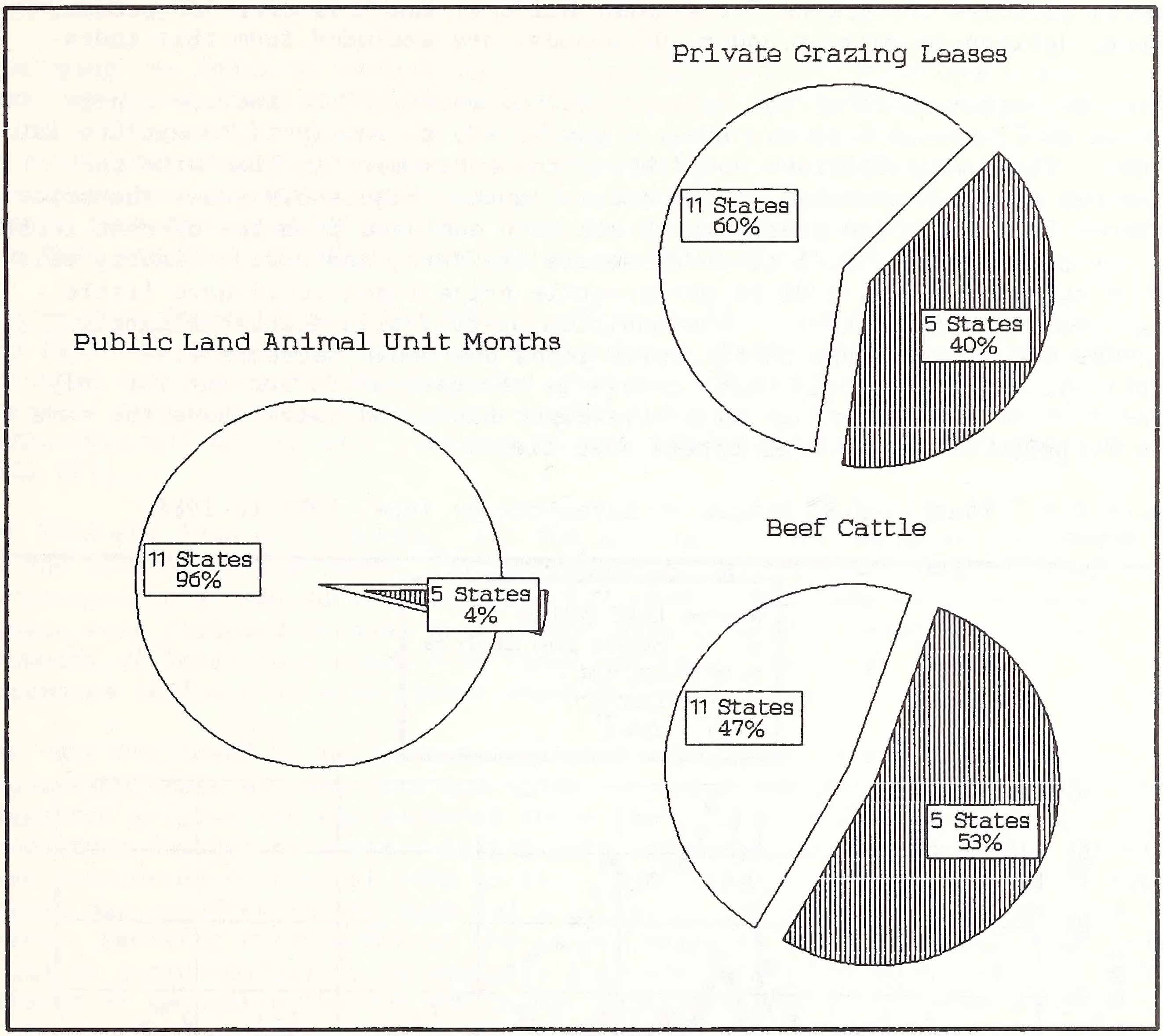
Figure 3.7: Comparison of the Appraisal Values for Private Grazing Lease Rates and the June Enumerative Survey Values, 1978 to 1983



The survey used to estimate the FVI asks respondents to "report" on what they believe the average private grazing lease rate is in their area. Use of a reporter question has been criticized since it is asking persons to speculate on values rather than asking for known values. The closeness of the JES to the appraisal partially validates the use of the reporter question. Further studies indicated that additional improvement would not be cost effective.

The sample used in the survey to derive the FVI is weighted by the number of farm units. Concern has been expressed over the weighting procedures since areas with large amounts of public land tend to have few farm units and, therefore, make up a very small proportion of the FVI sample. For example, California, with many farm units but few public lands, is sampled more heavily than its neighboring State of Nevada, with few farm units but a large amount of public land. The current weighting system has the advantage that it is more representative of all livestock operators. The percent of public land AUM's, private leases, and beef cattle marketings by State are shown in Appendix B, Figure B.10 and summarized in Figure 3.8. Weighting by AUM's would result in a private lease rate value of $8.06 for 1983 versus the $8.85 rate derived under the current weighting procedures.

Figure 3.8: Comparison of the Percent of AUM's, the Percent of Private Grazing Land Leases, and the Percent of Beef Cattle in the 11 Western States and the 5 Great Plains States



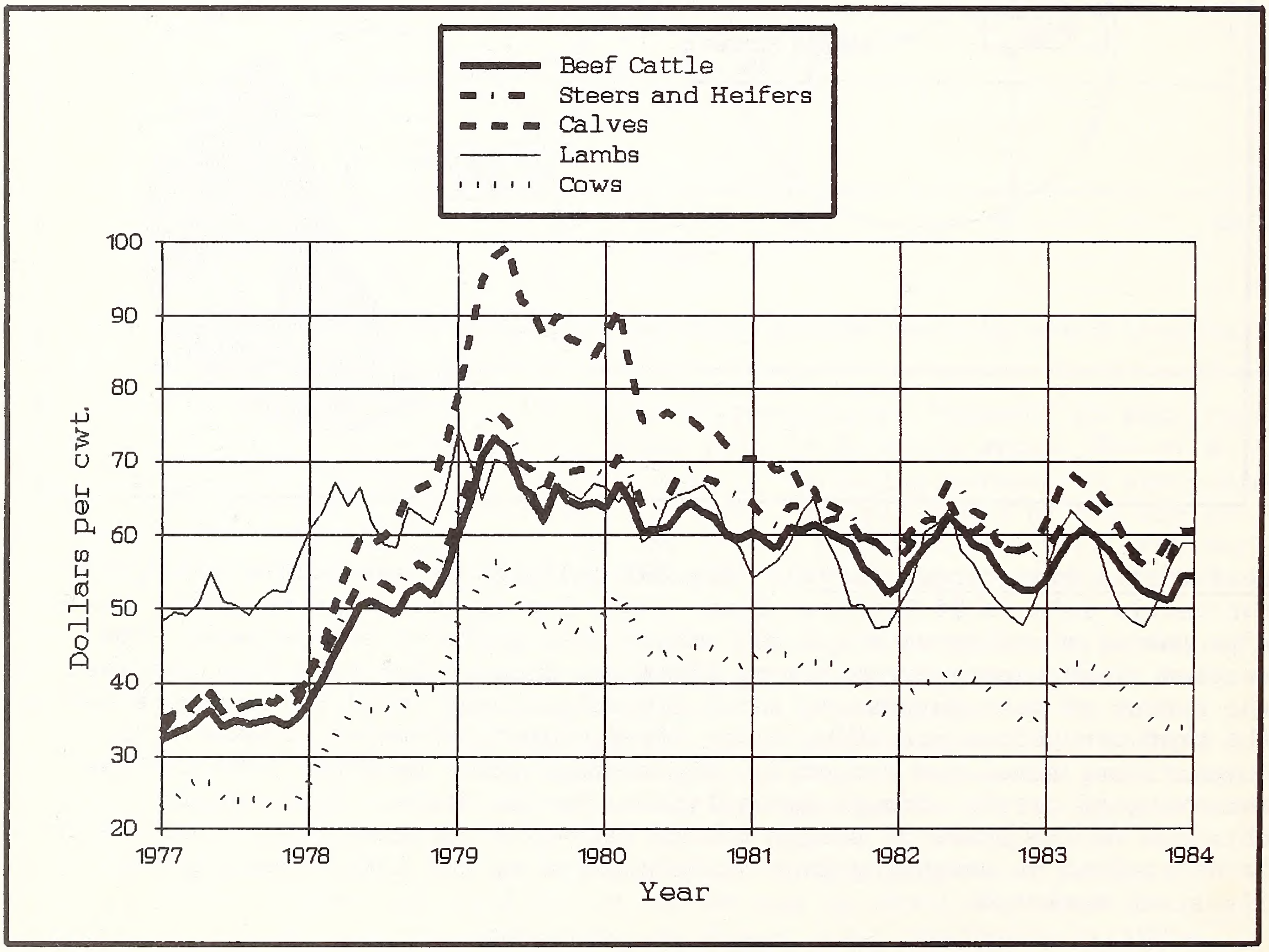
Beef Cattle Price Index (BCPI): The SRS collects prices received by producers for cattle sold in 35 States. Since 1981, the livestock price survey has used a probability survey of auctions, stockyards, packers, and dealers. The sampled firms report purchases of livestock from producers. Data provided are the number of head purchased, total liveweight, and total dollars received by the producer before marketing costs (feed, water, trucking, commissions, inspections, etc.) are deducted. The average price by State reflects the marketing of cattle through firms located in the State. No information is obtained on the State of origin of the livestock marketed. The westwide price is determined by weighting each State's price by the total liveweight of livestock marketed.

The data used in the PRIA grazing fee formula are based on actual transactions during the 12-month, November-through-October period. An average annual price is computed. The annual price is converted to an index number by dividing the price by $22.04 per hundredweight (the 1964-1968 average beef cattle price) and multiplied times 100.

The prices used for the index are for beef cattle, which are defined as cattle that are marketed weighing over 500 pounds, including both feeder and slaughter animals. Figure 3.9 shows the prices received by producers for different types of beef cattle. The beef cattle price used in the PRIA formula includes the prices for steers, heifers, and cows over 500 pounds. Calves, defined as animals under 500 pounds, are excluded from this index.

Potential improvements to the BCPI are (1) to modify it to include other classes of livestock (calves, sheep), and/or (2) to modify it to exclude fat cattle. These modifications would bring the index more in line with the livestock products produced on the public lands. Figure 3.9 shows the price patterns for calves and sheep, which are both excluded from the current index, and for beef cattle (which includes steers, heifers, and cows). Adding calf prices to the existing BCPI to get a cattle price index would have little impact on the price pattern. The addition of calf prices would slightly increase the level of the cattle price index but would decrease its stability. The relatively small change is because calves account for only 11 percent of the marketings on a liveweight basis and calves have the same general price trends as beef cattle over time.

Figure 3.9: Monthly U.S. Prices of Livestock by Type, 1977 to 1984



The SRS has recommended that data on sheep and lambs not be included in any livestock price index for the following reasons: (1) data on sheep are not as reliable as the data used to prepare the other indexes, and (2) sheep make up such a small portion of the livestock sales that the addition of the data would have only a minor effect on the index.

Modifying the index to exclude fat cattle would satisfy the concern that has been expressed about including cattle fed through feedlots in the formula price. This would require the use of a new series that started in 1983 with no historical data before that year. The series would more accurately reflect the livestock on public land, but it is unlikely to reflect different price trends than the existing series. This is not recommended as a substitute for the BCPI weighted by public land AUM's in the 16 Western States.

Prices Paid Index (PPI): The PRIA's PPI is an index of selected components of the National Index of Prices Paid by Farmers. Weights used to combine the selected components are based on the 1976 cost of production budget for cow-calf operations in the western region. Figure 3.10 shows the selected components and the weights assigned to the components for the National and the PRIA PPI.

The PRIA PPI does not include: (1) the cost of living component represented by the Consumer Price Index, (2) components of farm origin (feed, feeder livestock, seed, and fertilizer), and (3) taxes. The components of farm origin were excluded because these components generally represent either elements of feed, feed production (seed and fertilizer), or livestock purchases included in other index components.

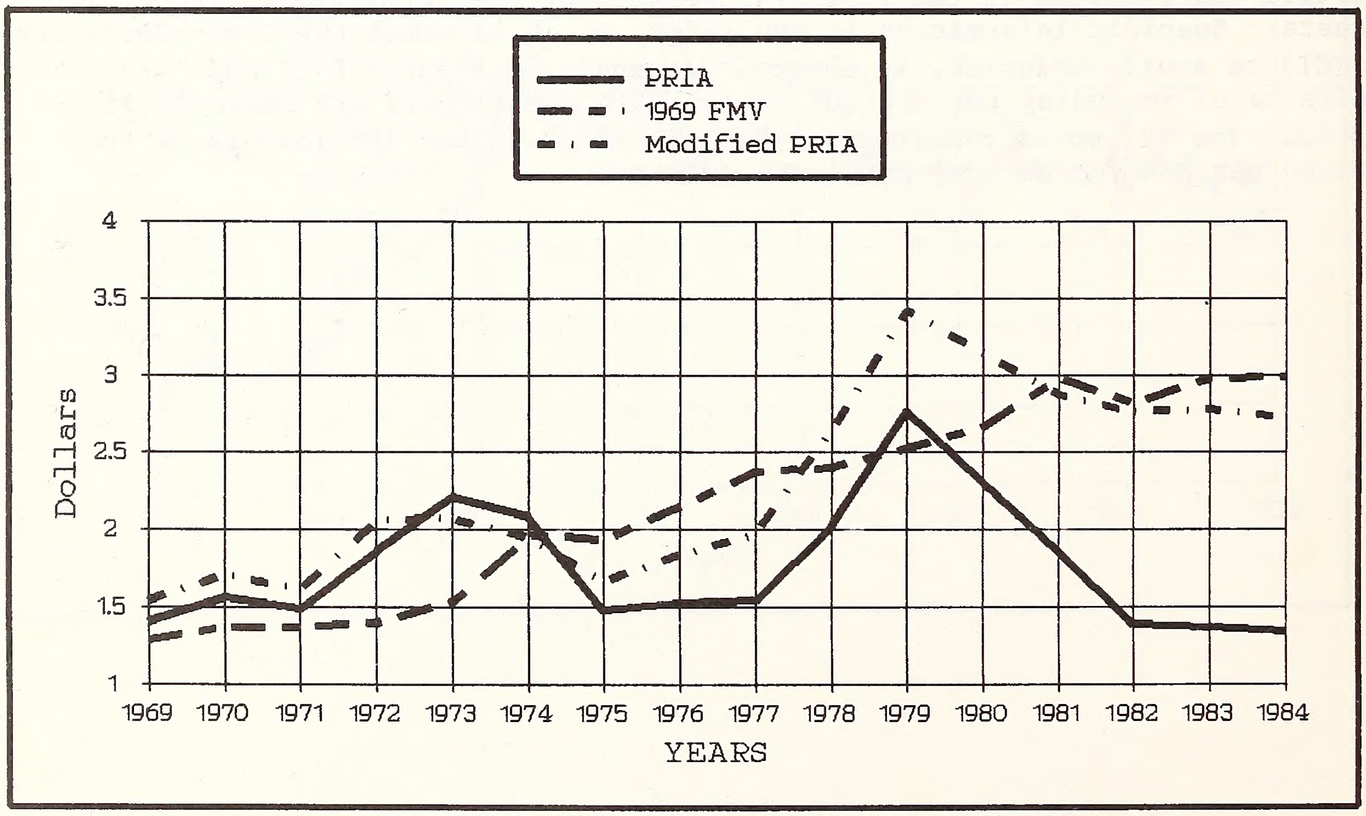
The PRIA PPI could be improved by expanding the index to include all production costs of both farm and nonfarm origin. The components and suggested weights for the expanded index are also shown in Figure 3.10. Production factors of nonfarm origin have increased in cost much more rapidly than production factors of farm origin. Excluding production factors of farm origin has resulted in the PRIA PPI overstating the permittee's production costs. Specific information in the index, which is named the Input Cost Index (ICI) to avoid confusion, is shown in Appendix B, Figures B.11 and B.12. The effects of including the new ICI in the PRIA fee formula are shown in Figure 3.11. The ICI would result in a 1983 fee of $2.85 per AUM instead of the $1.40 per AUM fee derived using the PRIA PPI.

Figure 3.10: Comparison of the Factors Used in the National and the PRIA Prices Paid Indexes, and the Proposed Input Cost Index.

Index Components	National PPI	PRIA PPI	ICI
Consumer Price Index	30.4	0	0
Production Commodities	57.6	80.0	66.2
Feed	11.8	0	42.6
Feeder Livestock	11.7	0	0
Seed	1.8	0	0
Fertilizer and Ag. Chemical	5.9	0	0
Fuels and Energy	3.5	14.5	6.7
Farm and Motor Supplies	2.2	12.0	0
Autos and Trucks	2.5	4.5	0
Tractors and Self-Prop. Machinery	4.5	4.5	7.2
Other Machinery	2.7	12.0	0
Bldg. and Fencing Material	3.6	14.5	4.8
Farm Services	7.4	18.0	4.9
Interest*	4.0	6.0	19.0
Taxes and Insurance	2.8	0	6.3
Farm Wage Rates	5.2	14.0	8.5
Total	100.0	100.0	100.0

*Non-real estate interest

Figure 3.11: PRIA and the 1969 Formula Fee Values and the PRIA Computed Using the ICI



Alternative Index Weights: Weighting factors for the FVI and the BCPI have been discussed above. Currently, the PPI is based on a nationwide index weighted to 11 Western States to reflect production costs for cow-calf operations in the western United States. The FVI and BCPI are both 11-State indexes weighted by the number of private leases and the total liveweight cattle sales, respectively. The PRIA covers grazing in the 16 Western States, and an improvement in the fee formula would be to base the data used in the fee calculation on the 16 Western States. If the indexes are based on 16 States rather than the 11 States, problems arise since the 5 Great Plains States dominate beef production. The States' share of BLM/Forest Service AUM's, marketings, and private leases is shown in Appendix B, Figure B.10, and summarized in Figure 3.8. An example of the problem of expanding to 16 Western States is shown by looking at Nebraska with 28.9 percent of the market receipts and 17.4 percent of the private leases in 1983 but less than 1 percent of the comparable AUM's.

An alternative weighting scheme would be the use of BLM and Forest Service AUM's in each State. The AUM weights could be applied to both the BCPI and the FVI. This would better represent the market conditions facing the permittee and result in an improvement in these indexes.

The difference that weighting makes in the relative values for private grazing lease rate and beef cattle prices for 1983 is shown in Figure 3.12. The 1983 grazing fee based on current weights for the 16 Western States would have been $1.67 per AUM, as opposed to an AUM weighted fee of $1.03 (the actual 1983 fee based on 11 Western States was $1.40 per AUM).

Figure 3.12: Comparison of Alternative Weightings of the Private Grazing Land Lease Rate and the Beef Cattle Price Index, 1983

	Existing Value	AUM Weighted Value
	---------- $/AUM	-----------
Private Grazing Lease Rate		
11 State	$ 8.85	$ 8.06
16 State	$ 9.59	$ 8.17
Beef Cattle Prices		
11 State	$ 56.04	$ 54.61
16 State	$ 57.20	$ 51.69
PRIA Grazing Fees		
11 State	$ 1.40	$ .95
16 State	$ 1.67	$ 1.03

Alternative Base Periods: The PRIA uses a multiyear base period of 1964 to 1968 for all of the indexes, i.e., the average of 1964 to 1968 was set equal to 100. The base period was chosen to correspond to the 1966 Western Livestock Grazing Survey. The SRS recommends that the base period on the indexes be updated on a periodic basis to more recent base periods, with updates about every 10 years. The base time period should correspond to

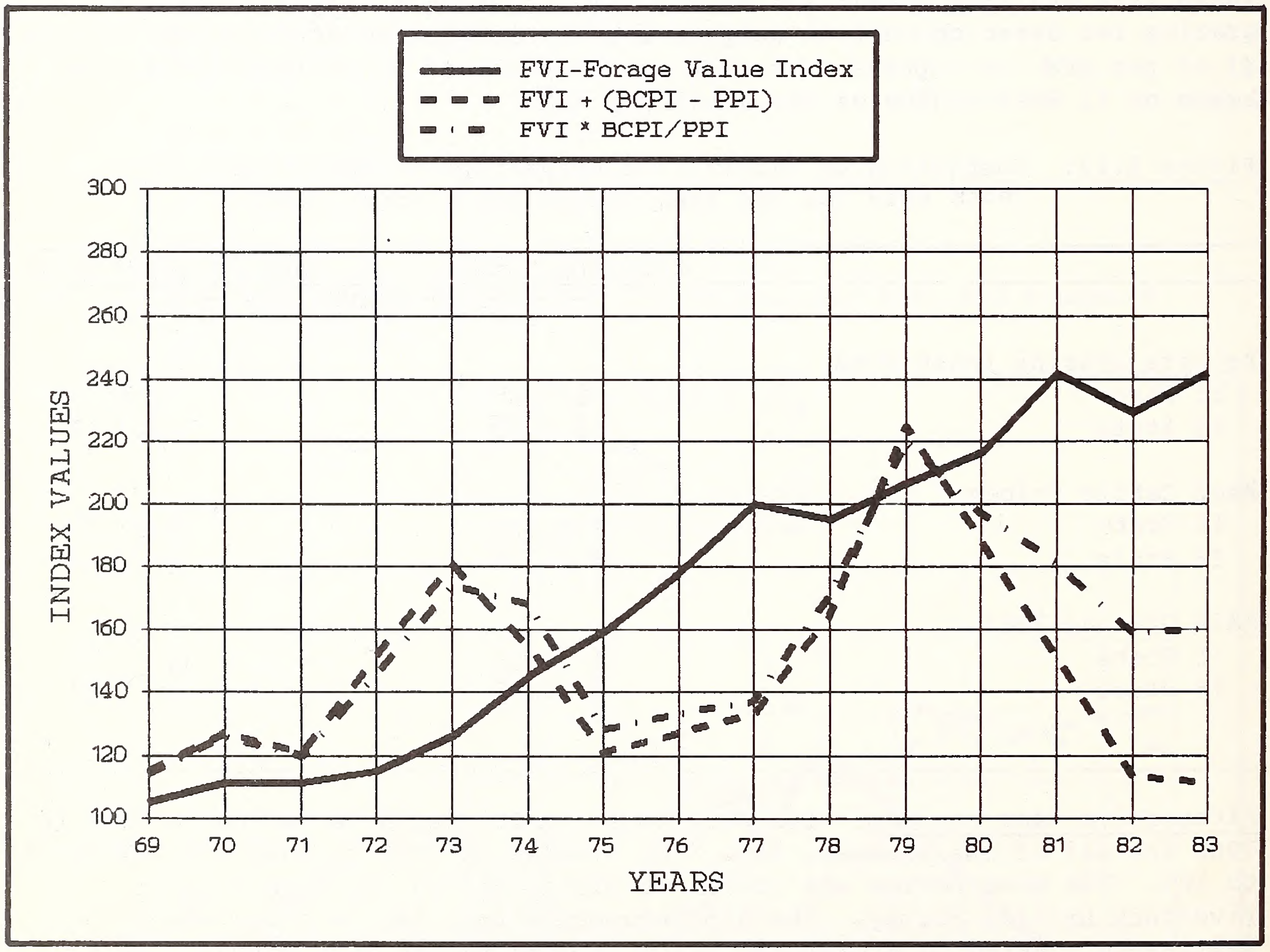
a time period, such as the 1980 to 1984 period, when the economy of the farm sector is reasonably stable and prices do not have distorted relationships. In addition, the time period should correspond with the 1983 grazing rental appraisal, if the appraisal is used to determine the base value. Use of State level indexes for the PRIA PPI, FVI, and BCPI was investigated but is not recommended because of a low level of reliability and stability of the index when the sample size is reduced to the State level samples.

PRIA Formula Construction: The PRIA formula could be improved by dividing the beef cattle prices by the costs of production. A ratio of the combined index (BCPI/ICI) would deflate the difference between the private grazing land lease rates, as measured by the FVI, and the PRIA fees. This is illustrated for the years 1969 to 1982 using the existing index values to develop the ratio in Figure 3.13. The proposed construction of the formula is:

$$\text{Base Value} \times \frac{(\text{FVI} \times \text{BCPI/ICI})}{100}$$

Use of the ratio rather than the absolute difference will also prevent the grazing fee from assuming negative values.

Figure 3.13: Comparison of the PRIA Formula, the PRIA Formula Using a Ratio of the Combined Index, and the FVI



CHAPTER 4. IDENTIFICATION AND EVALUATION OF GRAZING FEE OPTIONS

The PRIA requires the Secretaries to report to Congress on ". . . their evaluation of the fee established . . . and other grazing fee options, and their recommendation to implement a grazing fee schedule for the 1986 and subsequent grazing years." The selection of the grazing fee options and the development of the evaluation criteria are described below.

GRAZING FEE SYSTEMS CONSIDERED

In 1981, the Forest Service and the BLM contracted an inventory and analysis of grazing fee systems used by other Federal agencies and State and local governments in the 16 Western States. This study identified 44 State agencies, 63 local governments, and 11 other Federal agencies leasing grazing lands in the 16 Western States. The number of acres of other governments grazing lands on the combined average of State, local, and Federal agency grazing fees is shown in Appendix B, Figure B.13. In Appendix B, Figure B.14, shows the 1981 fees charged by State Land Boards or Education Departments. The fees per AUM range from $1.43 in Arizona to $14 in Nebraska. Formulas were the most common means of fee determination on the State lands with some States using the PRIA fee formula. Fee methods used by State wildlife agencies and other Federal agencies are shown in Appendix B, Figure B.15. Bidding is the most common means of fee determination for these agencies. A summary of the fee systems identified by these studies is shown on Figure 4.1.

Figure 4.1: Grazing Fee Systems Reviewed in Formulating Alternatives to PRIA Fee System

Fee Determination Method	State Government	Local Government	Other Federal	Private	Other (Corporate/ Public Utility etc.)	Comments (Users of the fee determination method, other relevant comments)
1. PRIA (Current FS/BLM) Legislated Fee System	*		*			1. States: Arizona, California and Utah (State Lands Dept.) Fed'l: Nat'l Park Service
2. Appraised FMV	*	*	*	*	*	2. Dominant method in use next to Competitive Bid
3. Landlord-Tenant Negotiation				*		3. Common Private Market approach to pricing
4. Landlord Share of Gain/Animal				*		4. Private Market approach to pricing
5. Rental Value/Acre Grazed	*	*		*		5. System observed in California, Colorado, (especially local governments)
6. Base Rent x Mkt $/Cost	*					6. Former Oklahoma, South Dakota, and Montana Fee System
7. Base Rent Adjusted by Variable Carrying Capacity	* *				*	7. Fee system designed by University of Nevada - Reno
8. Competitive Bidding			*			8. Defense Depts. (Navy, Corps of Engineers), Bureau of Indian Affairs, Bureau of Reclamation, BLM/FS
9. Cost Recovery					*	9. Public Utility Companies, recommended by University Economists (Western States) for economic efficiency/equity reasons
10. Alternative Feed Cost	*				*	10. Designed by University of Nebraska, used in Nebraska, Missouri, and FS use in Northeastern Region
11. Wash. State Fee Formula	*					11. Includes ability to pay, variable carrying capacity, and ranchers share of investments
12. Residual Forage Value					*	12. Designed/used by Agric Economists (Universities/Federal Agencies) --basis for determining financial statements, net worth

Unlike the BLM and the Forest Service, range resource management for domestic livestock production is not a major objective of programs being carried out by these other agencies and governments. With the exception of the Bureau of Indian Affairs, grazing is incidental to their programs and is carried out either to make productive use of lands currently not needed for primary programs or to facilitate these primary programs. However, data collected during the study indicated that approximately 52.7 million acres were grazed by livestock under authority of these other public entities.

Five alternative grazing fee systems and the existing PRIA fee system are considered for use by the Forest Service and the BLM. The candidate systems are: (1) a modified PRIA with a base value from the appraisal and with improved indexes, (2) a fee system that recognizes nonfee costs, (3) a fee based on livestock prices, (4) a modified market value fee based on the appraisal, and (5) competitive bidding for a term permit. All of the fee alternatives except PRIA are considered for implementation on both a westwide and a regionally variable fee basis. Alternative implementation schedules are also considered.

With the exception of the Competitive Bid fee system, all fee systems use data that were derived and supplied by the SRS to make the annual adjustments. The westwide fee systems all use the lowest appraised pricing area as the base value. This minimizes the potential nonuse of the public rangelands.

MODIFIED PRIA FEE SYSTEM

Description: The Modified PRIA formula and indexes utilize all of the modifications to PRIA discussed in the previous chapter. These include using the 16-State area, weighting by AUM's, and changing the base period. The economic value of grazing would be defined as the base value as determined through the grazing rental appraisal, adjusted annually by the modified Forage Value Index, and multiplied by the ratio index of the Beef Cattle Price Index and the Input Costs Index.

$$\text{Fee} = \text{ABV} \times \frac{(\text{FVI} \times (\text{BCPI}/\text{ICI}))}{100}$$

Where:

ABV = Appraised Base Value for pricing areas or westwide (dollars per head month)

FVI = Forage Value Index based on the AUM weighted private grazing land lease rate for the 16 Western States, 1980-1984 = 100

BCPI = Beef Cattle Price Index, existing beef cattle prices weighted by AUM's for the 16 Western States, 1980-1984 = 100

ICI = National Prices Paid Index, weighted to reflect all production costs (both farm and nonfarm origin) for typical cow-calf operations in the western region, 1980-1984 = 100

The above improved indexes and their derivation are shown in Figure 4.2.

Figure 4.2: Computation of Indexes for Modified PRIA, Nonfee Costs, and Modified Market Value Fee Formulas, 1980 to 1985

Data Year	Fee Year	Beef Cattle Prices --- $ ---	BCPI	Private Lease Rate --- $ ---	FVI	Input Costs Index (ICI)
1980	1981	$63.66	114	$6.94	92	90
1981	1982	$57.15	102	$7.94	105	102
1982	1983	$53.37	96	$7.50	99	102
1983	1984	$51.69	93	$7.63	101	102
1984	1985	$53.09	95	$7.75	103	104
1980-1984		$55.79	100	$7.55	100	100

Application: The Modified PRIA grazing fee can be applied on either a westwide or a pricing area basis. Application westwide uses the appraised value (advance payment) of the lowest pricing area (Area 5 = $4.68) as the ABV. An example of the fee calculation for the 1983 fee year follows. The grazing fee computation of the westwide fee for the years 1981 to 1985 (data years 1980 to 1984) is shown in Figure 4.3.

1983 Fee = $4.68 x .93 = $4.36 per head month

Figure 4.3: Westwide Values of the Modified PRIA Fee Formula, 1981 to 1985

Data Year	Fee Year	Formula Factor*	Economic Value (per head month)
1980	1981	1.17	$5.48
1981	1982	1.05	$4.91
1982	1983	0.93	$4.36
1983	1984	0.92	$4.31
1984	1985	0.94	$4.40

*The formula factor is the product of the FVI x (BCPI/ICI)

Application by pricing areas uses the appraised value (advance payment) as the new base value (ABV) and westwide indexes shown in Figure 4.2. The fee computation for 1981 to 1985 by pricing area is shown in Figure 4.4.

Figure 4.4: Modified PRIA, Pricing Area Application, 1981 to 1985

Fee Year	Formula Factor	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6
ABV		$8.55	$6.39	$6.84	$5.31	$4.68	$5.76
1981	1.17	$10.00	$7.47	$8.00	$6.21	$5.48	$6.74
1982	1.05	$8.98	$6.71	$7.18	$5.58	$4.91	$6.05
1983	0.93	$7.95	$5.94	$6.36	$4.94	$4.35	$5.36
1984	0.92	$7.87	$5.88	$6.29	$4.89	$4.31	$5.30
1985	0.94	$8.04	$6.01	$6.43	$4.99	$4.40	$5.41

NONFEE (DIFFERENTIAL) COSTS FEE SYSTEM

Description: The Nonfee (differential) Cost fee formula is an updated application of the 1964 Utah Economic Model, which was used as the theoretical basis for the 1966 grazing fee study and 1969 grazing fee system. A 1983 updated base value is derived by subtracting differences in variable costs of grazing public rangelands as opposed to leased private rangelands from the private grazing land lease rates observed in the 1983 appraisal. Annual updating of the base value is through the FVI in conjunction with a modified combined index of beef cattle prices and costs of production.

The public rangeland users are concerned that the qualitative approach used in the market value appraisal failed to fully recognize and account for the nonfee costs (such as death loss, maintenance expenditures, etc.) that they incur on public ranges. As a result, they supported the collection of data on cash and noncash costs in some of the Western States. The intent of their survey was to replicate the 1966 Western Livestock Grazing Survey by asking for specific data that would allow a quantitative determination of the costs of grazing public lands. The individual State surveys generally failed, however, to gather information on the costs of grazing privately leased lands, which would allow the determination of fair market value in a manner similar to the 1966 Western Livestock Grazing Survey. State studies on nonfee costs also varied by geographic area with different sampling techniques employed and, in some instances, different questions being asked. All States except Nevada used lists of permittees to develop the survey samples. Restricting the survey to permittees limited the sample to those individuals who have a stake in the determination of grazing fees.

The studies, as summarized by Oregon State University in 1984, showed that nonfee costs increased 380 percent over 1966. (See Appendix B, Figures B.16 through B.19, which show the State summaries of nonfee costs and the derivation of the 380 percent.)

The 380 percent increase was used to adjust the 1966 nonfee cost differential of $0.55 to $2.09. This amount was deducted from the average private lease rate value to determine the updated (1983) base value which would be annually adjusted using the same procedure described in the Modified PRIA formula. The Nonfee Cost formula is:

$$\text{Fee} = \text{EBV} \times \frac{\text{FVI} \times (\text{BCPI}/\text{ICI})}{100}$$

Where:

EBV = Economic Base Value derived by subtracting the nonfee costs difference of $2.09 from the private grazing land lease rate. The private grazing land lease rate is discounted 10 percent for advance payment.

The other indexes are as described in Figure 4.2.

Application: An example of the 1983 westwide application follows. The value of the fee from 1981 to 1985 is shown in Figure 4.5.

Base Value = \$2.86 (lowest pricing area--Area 5 = \$5.50, discounted 10 percent = \$4.95, and minus \$2.09 = \$2.86)

$$\text{1983 Fee} = \$2.86 \times \frac{(99 \times (96/102))}{100} = \$2.86 \times .93 = \$2.66 \text{ per head month}$$

Figure 4.5: Westwide Values of the Nonfee Costs Fee Formula, 1981 to 1985

Data Year	Fee Year	Formula Factor	Economic Value (per head month)
1980	1981	1.17	\$3.35
1981	1982	1.05	\$3.00
1982	1983	0.93	\$2.66
1983	1984	0.92	\$2.63
1984	1985	0.94	\$2.69

The derivation of the base fee by pricing area is shown in Figure 4.6. The application by pricing area is shown in Figure 4.7.

Figure 4.6: Derivation of Economic Base Value for Pricing Areas

Price Area	Private Grazing Land Lease Rate	10% Advance Payment Discount	Differential Cost Adjustment	Base Value
1	\$10.00	\$9.00	\$2.09	\$6.91
2	\$ 7.50	\$6.75	\$2.09	\$4.66
3	\$ 8.00	\$7.20	\$2.09	\$5.11
4	\$ 6.25	\$5.63	\$2.09	\$3.54
5	\$ 5.50	\$4.95	\$2.09	\$2.86
6	\$ 6.75	\$6.08	\$2.09	\$3.99

Figure 4.7: Nonfee Costs Pricing Area Application

	Formula Factor	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6
EBV:		\$6.91	\$4.66	\$5.11	\$3.54	\$2.86	\$3.99
Fee Year							
1981	1.17	\$8.08	\$5.45	\$5.98	\$4.14	\$3.35	\$4.67
1982	1.05	\$7.26	\$4.89	\$5.37	\$3.72	\$3.00	\$4.19
1983	0.93	\$6.43	\$4.33	\$4.75	\$3.29	\$2.66	\$3.71
1984	0.92	\$6.36	\$4.29	\$4.70	\$3.26	\$2.63	\$3.67
1985	0.94	\$6.50	\$4.38	\$4.80	\$3.33	\$2.69	\$3.75

LIVESTOCK PRICE FEE SYSTEM

Description: Fees based on or adjusted by livestock prices were charged by the BLM from 1958 to 1968 and by the Forest Service from 1932 to 1968. Several States also base fees on livestock prices at various percent returns to the governments: South Dakota's return has varied from 23 to 25 percent; Arizona prior to 1982 used 22 percent; Oklahoma prior to 1983 used 20 percent; and Montana used 17 percent. The livestock price system is one in which the landowner or the general public receives a reasonable share of the commodity or product produced from the use of the forage and land resources. Twenty (20) percent of the livestock price is used as a reasonable rate of return based on the State systems although other percentages could be chosen.

The fee charged each year would be based on 20 percent of the mean of the previous 5 years' prices received for calves. Calves were selected as the most typical product coming off the public rangeland. Use of a forward moving series of 5-year prices would normalize price fluctuations from year to year. The fee formula is:

$$\text{AUM Fee} = \frac{20\% \times (\text{5-year average calf price per cwt.}) \times (\text{cwt./calf})}{12 \text{ months}}$$

A variable fee can be developed by aggregating the calf price data into combinations of States. The SRS recommends that data not be used on an individual State basis because of problems with statistical accuracy. The variable price areas chosen for aggregation are:

- Plains States - Kansas, Nebraska, North Dakota, Oklahoma, South Dakota, and Texas
- Mountain States - Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming
- West Coast States - California, Oregon, and Washington.

Application: The calf price values and the 5-year average prices are displayed in Figure 4.8. The 425-pound calf is used as an example; the formula would be based on an estimate of the average weight of calves coming off the public rangelands. Examples of different government shares and calf weight are shown in Appendix B, Figure B.20. Calculated grazing fees for this alternative are displayed for the pricing areas and the 16 States in Figure 4.9. An example of the westwide fee for 1983 is shown below.

$$\text{1983 Fee} = \frac{0.20 \times \$60.40/\text{cwt.} \times 4.25 \text{ cwt.}}{12} = \$4.92 \text{ per head month}$$

Figure 4.8: Calf Prices and 5-Year Average Calf Prices

DATE	PLAINS	MOUNTAIN	WEST COAST	16-STATE
	------------- dollars per hundred weight ------------			
Yearly Prices				
Nov. 75 - Oct. 76	$35.07	$35.14	$31.53	$34.92
Nov. 76 - Oct. 77	$36.45	$38.19	$33.55	$37.33
Nov. 77 - Oct. 78	$53.88	$53.33	$47.54	$52.63
Nov. 78 - Oct. 79	$85.75	$83.94	$73.88	$82.86
Nov. 79 - Oct. 80	$79.98	$82.24	$71.86	$80.33
Nov. 80 - Oct. 81	$69.09	$69.77	$62.27	$70.12
Nov. 81 - Oct. 82	$60.70	$62.06	$55.76	$61.28
Nov. 82 - Oct. 83	$62.37	$63.88	$56.84	$62.70
Nov. 83 - Oct. 84	$61.86	$62.67	$56.62	$62.02
5-Year Average Prices				
Nov. 75 - Oct. 80	$58.23	$58.57	$51.67	$57.61
Nov. 76 - Oct. 81	$65.03	$65.49	$57.82	$64.65
Nov. 77 - Oct. 82	$69.88	$70.27	$62.26	$69.44
Nov. 78 - Oct. 83	$71.58	$72.38	$64.12	$71.46
Nov. 79 - Oct. 84	$66.80	$68.12	$60.67	$67.29

Figure 4.9: Livestock Price Grazing Fee, 1981 to 1985

Data Years	Fee year	PLAINS	MOUNTAIN	WEST COAST	16-STATE
		--------------- dollars per AUM ---------------			
1975-1980	1981	$4.12	$4.15	$3.66	$4.08
1976-1981	1982	$4.61	$4.64	$4.10	$4.58
1977-1982	1983	$4.95	$4.98	$4.41	$4.92
1978-1983	1984	$5.07	$5.13	$4.54	$5.06
1979-1984	1985	$4.73	$4.83	$4.30	$4.77

MODIFIED MARKET VALUE FEE SYSTEM

Description: This alternative uses the 1983 grazing rental appraisal as the base value and the forage value index as the annual adjustment factor. This alternative can be applied on either a westwide basis or by pricing area. The formula only considers the market value of grazing. The formula is:

$$\text{Fee} = MV = \frac{ABV \times FVI}{100}$$

Where:

- MV = Market Value
- ABV = Appraised Base Value by animal class for pricing areas or westwide (dollars per head month)
- FVI = Forage Value Index based on the AUM weighted private grazing land lease rate for the 16 Western States, 1980-1984 = 100

Application: The modified market value can either be achieved on a westwide or a regional basis. The westwide application is based on the lowest pricing area values by animal class. An example of the westwide application for mature cattle in 1983 follows. Fees would distinguish between mature cattle, yearling cattle, and sheep. The westwide applications for fee years 1981 to 1985 by animal class is shown in Figure 4.10.

$$1983 \text{ Fee} = \frac{\$4.68 \times 99}{100} = \$4.63 \text{ per head month}$$

Figure 4.10: Westwide Modified Market Value Fee System, 1981 to 1985

Data Year	Fee Year	FVI/100	Mature Cattle 1/	Yearlings 2/	Sheep 3/
ABV:			$4.68	$4.05	$0.95
1980	1981	0.92	$4.31	$3.73	$0.87
1981	1982	1.05	$4.91	$4.25	$1.00
1982	1983	0.99	$4.63	$4.01	$0.94
1983	1984	1.01	$4.73	$4.09	$0.96
1984	1985	1.03	$4.82	$4.17	$0.98

1/ Mature Cattle based on price Area 5
2/ Yearlings based on price Area 6
3/ Sheep appraised on only a westwide basis

The regional application would use the appraised base value by animal class for each pricing area. It would vary by region, as shown in Figure 4.11 below. An example of a fee for yearlings in pricing area 3 for 1983 is as follows:

$$1983 \text{ Fee} = \frac{\$5.26 \times 99}{100} = \$5.21 \text{ per head month}$$

Figure 4.11: Modified Market Value Grazing Fee Formula by Pricing Area, 1981 to 1985 Grazing Fee Year

Fee Year	FVI/100	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6
Mature Cattle ABV:		$8.55	$6.39	$6.84	$5.31	$4.68	$5.76
1981	0.92	$7.87	$5.88	$6.29	$4.89	$4.31	$5.30
1982	1.05	$8.98	$6.71	$7.18	$5.58	$4.91	$6.05
1983	0.99	$8.46	$6.33	$6.77	$5.26	$4.63	$5.70
1984	1.01	$8.64	$6.45	$6.91	$5.36	$4.73	$5.82
1985	1.03	$8.81	$6.58	$7.05	$5.47	$4.82	$5.93
Yearlings ABV:		$6.39	$5.76	$5.31	$4.86	$4.68	$4.05
1981	0.92	$5.88	$5.30	$4.89	$4.47	$4.31	$3.73
1982	1.05	$6.71	$6.05	$5.58	$5.10	$4.91	$4.25
1983	0.99	$6.33	$5.70	$5.26	$4.81	$4.63	$4.01
1984	1.01	$6.45	$5.82	$5.36	$4.91	$4.73	$4.09
1985	1.03	$6.58	$5.93	$5.47	$5.01	$4.82	$4.17

COMPETITIVE BID

Description: The most direct means of establishing fair market value is by competitive bidding. However, fair market value may not be achieved if there is an absence of bidding competition. Indeed, some Federal grazing leases would have only a single interested bidder. In such circumstances, sale value would be equal to the minimum acceptable bid. Competitive bidding would be used to establish grazing fees for 10-year term permits. A minimum bid price would be set by using the grazing rental appraisal or comparable private grazing land lease rates in the area.

Fees during the 10-year bid period could be adjusted annually through indexing the annual change in private grazing land lease rates or other alternative fee adjustments.

Sealed bids and applications for grazing permits would be submitted by the applicants. The winning qualified bidder would have the privilege of obtaining or renewing a permit on all of the AUM's offered. In cases of identical bids, the permittee selection process would be negotiated or a drawing would be held to determine the permit holder. The previous permittee would be given the opportunity to match the highest bid. The Competitive Bid alternative would require some legislative and regulatory changes.

When the initial term grazing period expired, allotments would again be put up for bid. Allotments would be advertised and bidding procedures would be repeated. The previous permittee would again be given the opportunity to match the highest bid.

If fees are indexed, the formula for the annual updating of the fee is:

$$\text{Fee} = \text{BFMV} \times \text{Index}$$

Where: BFMV = Base Bid (lowest bid value set at 1983 appraisal level)

Index = Index of private grazing land lease rates or cost of alternative feed sources

ALTERNATIVE IMPLEMENTATION SCHEDULES

The intensity of the economic impact caused by grazing fee changes can be varied over time by employing alternative implementation schedules. Alternative schedules considered are: 15 percent limitation, 25 percent limitation, 33.3 percent limitation, and 50 percent limitation on change from the previous year in any year. A straight line phase-in schedule was not considered because of problems created by delays under similar schedules in the past. Four moratoriums occurred under the 1969 fee system that was to be phased in over 10 years.

The 1983 PRIA grazing fee level was $1.40 per animal month. Using the appraised value of $4.68 per head month (Area 5), Figure 4.12 shows the number of years that it would take to reach the value under each of the implementation schedules. The Figure shows assumptions of zero inflation and of a 5 percent inflation level. Similar schedules could be developed for each alternative and pricing region.

The 50 percent limitation would allow the fee to reach the Modified Market Value fee in 4 years under the zero inflation assumption and 5 years under the 5 percent inflation assumption. This contrasts with the 15 percent limit which would not reach the Modified Market Value fee until the 10th year (15 years under the 5 percent inflation assumption). The degree of impact to public permittees would be inversely proportional to the speed of implementation. Government revenue increases would be reduced correspondingly according to the time taken to implement the fee systems.

Figure 4.12: Fee Level Changes to Eliminate Differences in the 1983 PRIA Fee and the 1983 Base Modified Market Value (Westwide and Area 5)

	Years to Achieve										
Assumption	1	2	3	4	5	6	7	8	9	10	15
	dollars per head										
Zero rate of Inflation											
50% Limit	1.40	2.10	3.15	4.68							
33.3% Limit	1.40	1.87	2.49	3.32	4.42	4.68					
25% Limit	1.40	1.75	2.19	2.73	3.42	4.27	4.68				
15% Limit	1.40	1.61	1.85	2.13	2.45	2.82	3.24	3.72	4.28	4.68	
5% Rate of Inflation											
Base plus 5% Inflation	4.68	4.91	5.16	5.42	5.69	5.97	6.27	6.59	6.91	7.26	9.27
50% Limit	1.40	2.10	3.15	4.12	5.69						
33.3% Limit	1.40	1.87	2.49	3.32	4.42	5.89	6.27				
25% Limit	1.40	1.75	2.19	2.73	3.42	4.27	5.34	6.59			
15% Limit	1.40	1.61	1.85	2.13	2.45	2.82	3.24	3.72	4.28	4.93	9.27

The Secretaries of Agriculture and the Interior may recommend any appropriate fee schedule that would result in an overall reasonable grazing fee. The fee schedule may be a single westwide fee, a variable fee based upon pricing areas, or a variable fee based upon a composite of combined and individual pricing areas.

CHAPTER 5. EVALUATION OF ALTERNATIVE FEE SYSTEMS AGAINST CRITERIA

Criteria used to evaluate the PRIA and alternative fee systems were developed through public input. The criteria initially identified were further refined to five criteria: equity to the Government, permittee impacts, administrative feasibility, consideration of other interests, and multiple-use considerations. The evaluation of each fee against the criteria follows.

EQUITY TO THE U.S. GOVERNMENT

The various grazing fee options would generate different revenues to the Federal Government. Figure 5.1 shows the relative fee levels and resulting Government revenues for 1983 for the five fee options for which the fee can be directly calculated. The Modified PRIA, the Livestock Price, and the Modified Market Value fee systems result in about the same level of Government revenues, approximately $80 million. The Nonfee Cost fee system would result in significantly higher revenues than PRIA but lower revenues than the Modified PRIA, Modified Market Value, and Livestock Price fee systems. The current PRIA fee system, in fact, generated revenues of $24 million in 1983.

The total revenue to the U.S. Government, as derived using the appraised values and 17.4 million AUM's of actual grazing use in 1983, would be $99.9 million.

Figure 5.1: Westwide Grazing Fee System Values, 1983

Fee System*	1983 Value	1983 Revenue
PRIA	$1.40	$24,300,000
Modified PRIA	$4.35	$75,500,000
Nonfee Costs	$2.66	$46,800,000
Livestock Prices	$4.92	$85,400,000
Modified Market Value--Mature Cattle	$4.63	$80,400,000**
-Yearling Cattle	$4.01	
-Sheep	$0.94	

*Competitive Bid is not displayed because it is a variable fee option.
** Revenue based on mature cattle only

Figure 5.2 shows the fees that would have resulted under the westwide fee options in the years 1981 through 1985. Until the fee approaches $9, revenues will generally vary in direct proportion to the size of the fee charged. At approximately $9 per head, permittees may begin to reduce herd size significantly, which would reduce revenue. (Appendix A provides a further discussion of impacts on permittees and changes in herd size.)

A second consideration in assessing the fairness of a fee to the Government is whether it covers the costs of administration to the Government ($3.40 per AUM in 1983). Figure 5.3 shows the relationship between Government revenues under various fee options and the cost of managing public livestock grazing. The costs shown include allotment planning and other requirements that might not be imposed in private grazing management, but do not include the costs of grazing/environmental impact statements, wild horse and burro management, or a general overhead allocation.

Figure 5.2: Westwide Fee System Values, 1981 to 1985

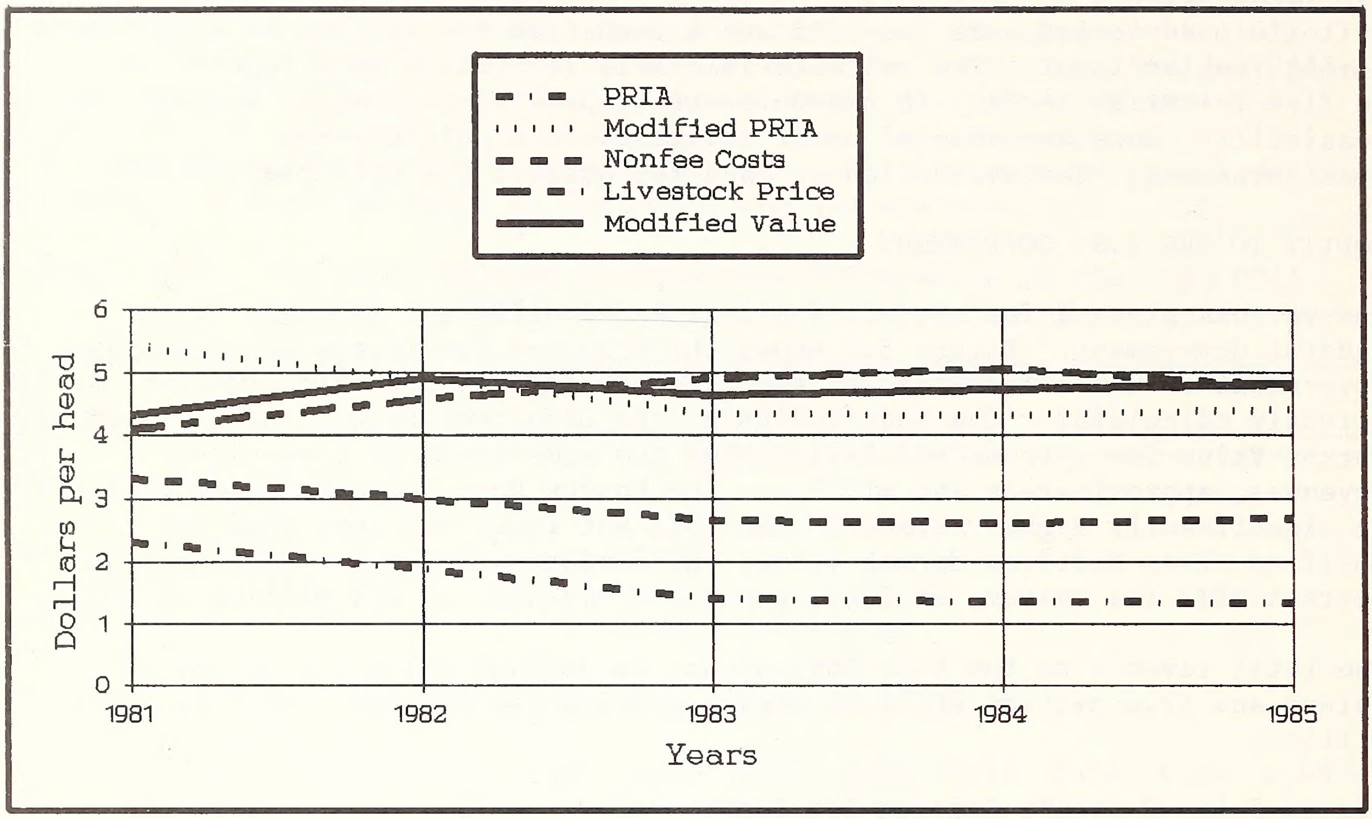
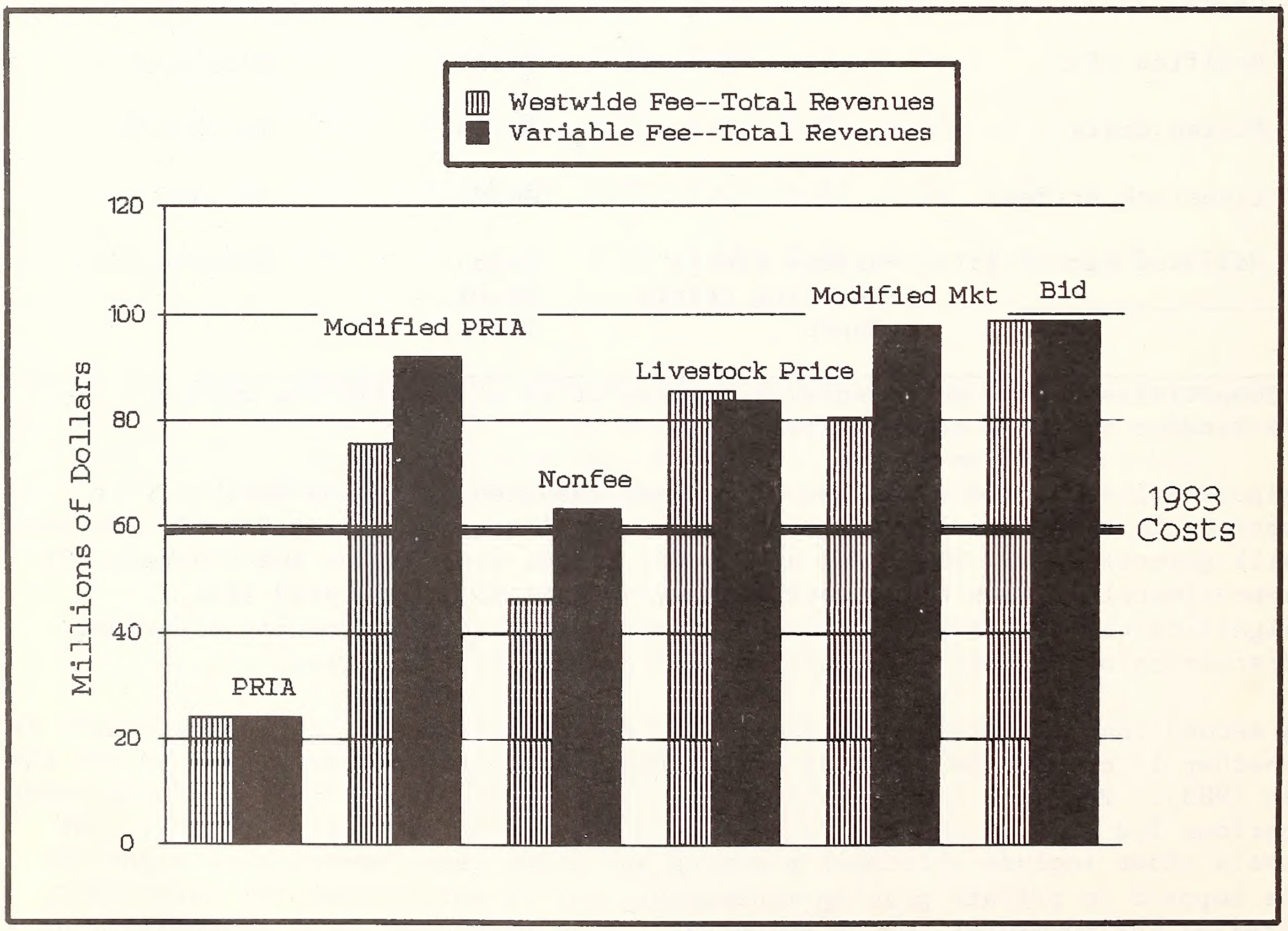
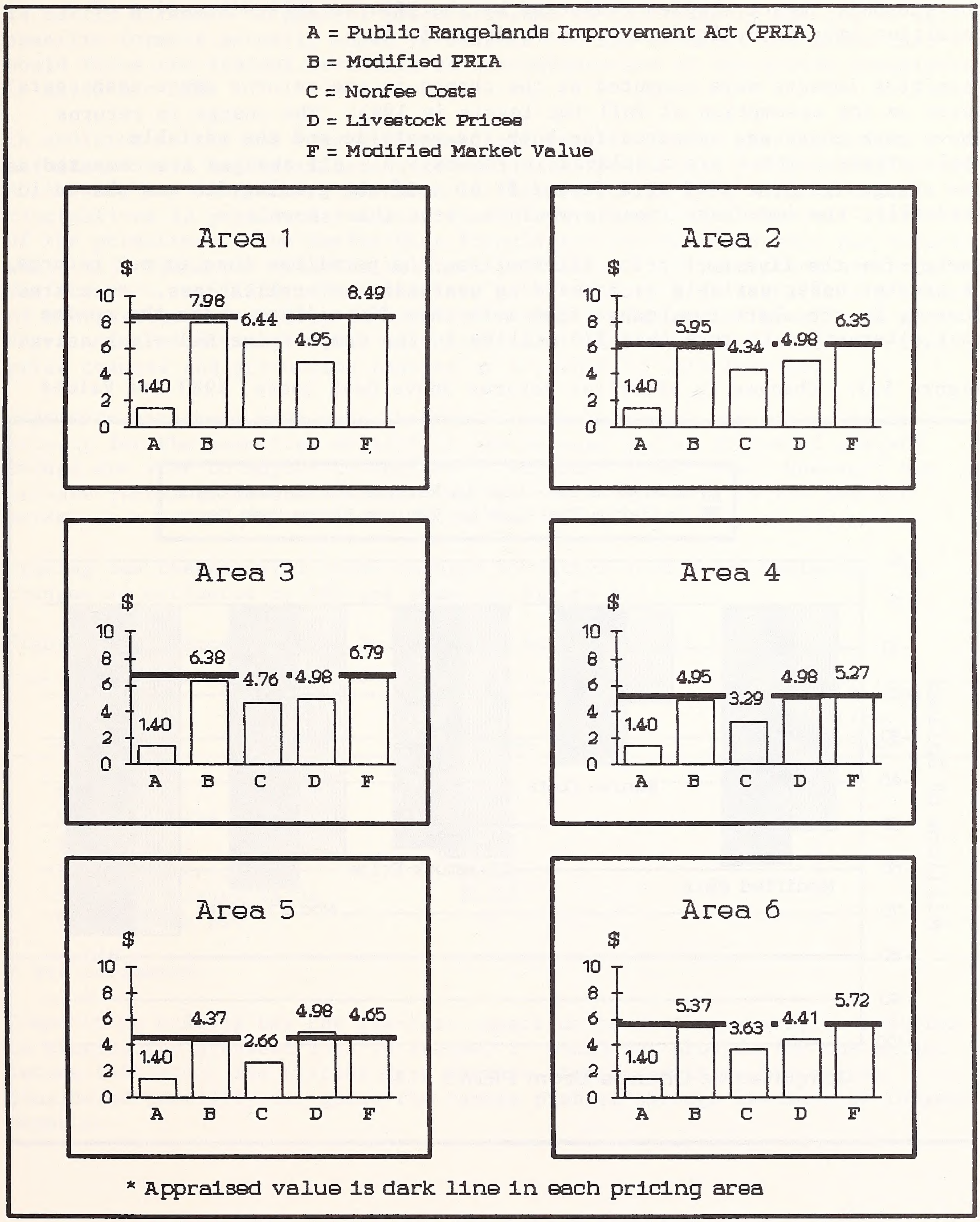


Figure 5.3: Revenues Received from Grazing Fee Alternatives Compared to Agencies Costs, 1983



The variable applications of the proposed fees are compared to the appraisal estimate for each pricing area in Figure 5.4.

Figure 5.4: Variable Grazing Fee Applications by Pricing Area



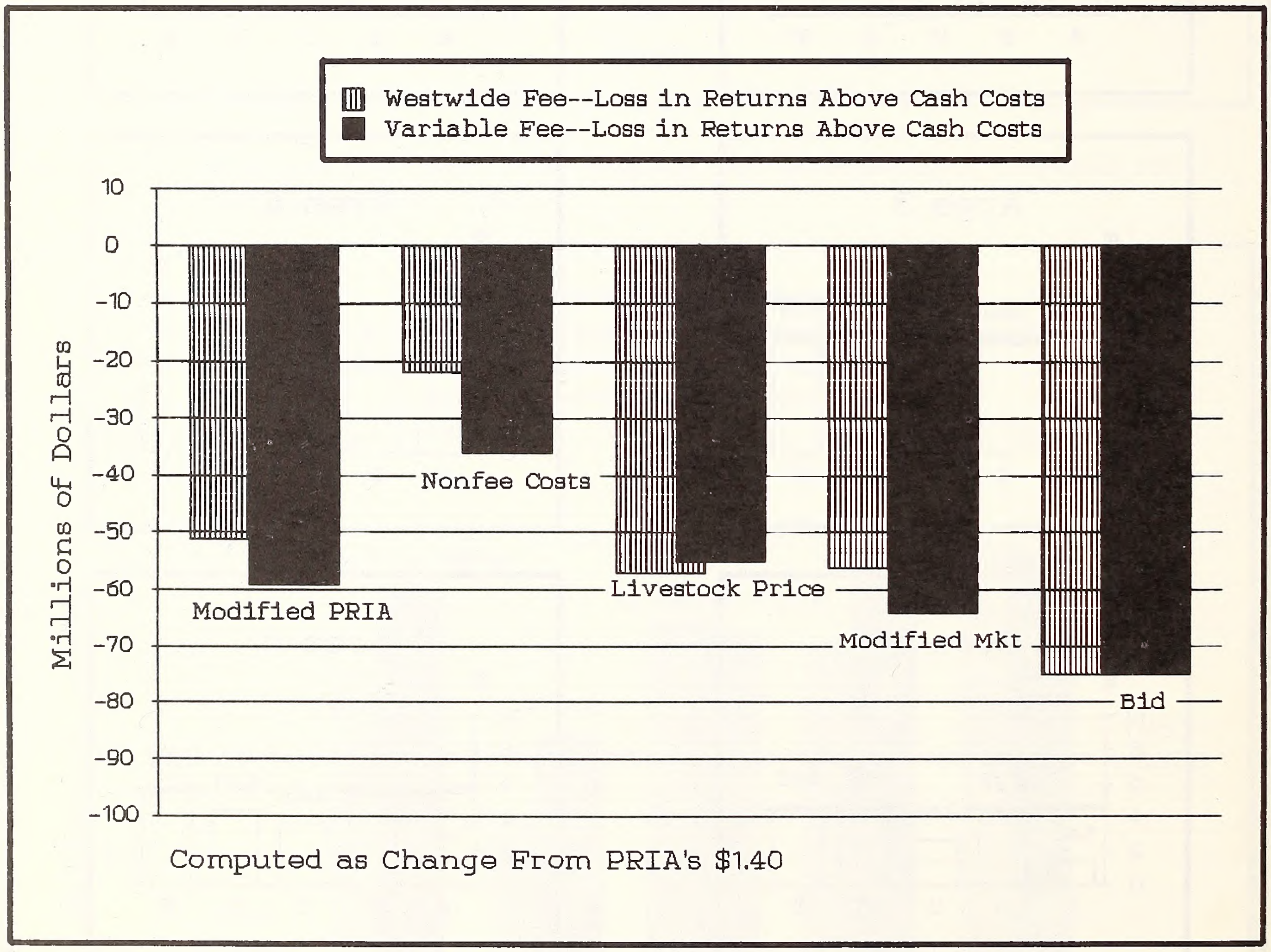
PERMITTEE IMPACTS

The fee should seek to avoid undue adverse economic impact to the permittee and promote the stability of family ranching operations. Economic impacts were computed from changes in the permitted net returns, as measured using the economic impact studies conducted by the ERS. A full discussion of permittee impacts by State appears in Appendix A.

Permittee impacts were computed as the change in the returns above cash costs based on the assumption of full fee levels in 1983. The change in returns above cash costs was computed for both the westwide and the variable applications. These are displayed in Figure 5.5. All changes are computed as the change from the 1983 PRIA fee of $1.40. If the grazing fee was phased in gradually, the immediate impacts would be less than shown.

Except for the livestock price alternative, the permittee loss in net returns is greater under variable as opposed to westwide fee applications. Permittee losses, in the short run, range from more than $20 million under the nonfee cost alternative to more than $70 million in the Competitive Bid alternative.

Figure 5.5: Changes in Permittee Returns Above Cash Costs, 1983 Fee Values



The changes in returns above cash cost represent short-term losses. In addition, some marginal permittees in all States may eventually be forced out of business as the result of higher grazing fees and reduced ability to borrow. As changes in the grazing fee contribute to some permittees going out of business, losses will be somewhat greater than illustrated. However, this is partly a result of general price problems in the industry and not to any specific formula actually shown in Chapter 4. The westwide fee level that would force the typical permittee to discontinue use of the public rangelands is $8.85 per AUM.

In addition to the net loss in income, the impacts of the grazing fee on permittees will be determined by how well the fee formula incorporates their ability to pay over time. As shown in Chapter 3, the PRIA formula tracks fluctuations in permittee returns, which contribute to the economic stability of the permittees. The Nonfee Cost formula and the Modified PRIA fee formula would also track the relative economic position of the permittees and provide for economic stability. The livestock price formula also contains a measure of the permittees' ability to pay, which should provide the permittees some degree of economic stability. The Government shares a portion of the risks of price changes and production changes as a result of this formula.

Arguments have been made that the Modified Market Value formula fails to account for the permittee ability to pay because rental prices of private forage are slow to adjust to changes in economic conditions. However, the private rental price does reflect what ranchers negotiate in the private market as a result of their own evaluation of their ability to pay.

Grazing fee changes will cause changes in cattle herd sizes westwide. The changes as estimated by ERS are shown in Figure 5.6.

Figure 5.6: Percent Change In Herd Size at Varying Fee Levels

Fee System	1983 Fee	Estimated Percent Reduction in Herd Size
PRIA	$1.40	0
Modified PRIA	$4.36	5
Nonfee Cost	$2.66	3
Livestock Price	$4.96	6
Modified Market Value	$4.63	5
Competitive Bid	*	*

* Not estimated

Competitive bidding has the greatest impact on permittees since, in addition to causing the greatest loss in income, it would not provide for the secure tenure that other fee systems do. However, the Competitive Bid system considered partially mitigates the tenure problem through issuance of 10-year permits.

A change in the fee system could result in changes in permittee asset or permit values. Such values are a result of permittee capitalization of any differences in the value of public grazing and the public grazing fee actually charged. Neither the Forest Service nor the BLM recognizes capitalized value of permits as an entitlement. The courts, likewise, have not recognized them as an entitlement attributable to public grazing use privileges. Changes in asset value are also caused by changes in the grazing fee, but no estimates were developed. The Competitive Bid alternative would eliminate most of the permit value and associated asset value.

Increased grazing fees would generally necessitate increased borrowing to stay in business. Increased fees would also reduce the capitalized asset value of the ranches with grazing permits, depressing the appraised value of the permittee's ranch for loan purposes. A decrease in ability to borrow funds could increase permittee losses from grazing fee changes. Potential reduction in borrowed funds were examined in the two States with the lowest and highest dependency of public rangeland forage. Arizona permittees, with high dependency on public lands, would be more affected by grazing fee changes than by reduced ability to borrow, whereas Montana permittees would be more affected by limited capital than a fee increase.

EQUITY AMONG LIVESTOCK PRODUCERS

Another consideration in evaluating the fee is its impact on livestock producers who do not have access to public rangeland grazing allotments. Theoretically, to be equitable, the fee system should be neutral between the public rangeland permittees and nonpermittees. By definition, if costs for public rangeland permittees are lower than market value, the permittees will have an economic advantage over nonpermittees. These advantages may be reflected in higher profit margins, in lower overall prices, in an incentive to graze more livestock, or in the mix of AUM's grazed. Currently, 2 percent of the Nation's livestock producers hold public rangeland permits, on which they graze 8 percent of the Nation's annual livestock forage. Figure 5.7 offers a summary comparison of statistics between the publc rangeland permittees and nonpermittees.

Figure 5.7: Comparison Between Grazers on Public Rangelands and Private Lands, 1983

	Public Rangelands	Private Lands
Fee per AUM/AM	\$1.37 1/	\$6.87 2/
No. of AUM/AM's grazed	17.6 million	161.1 million
% of Total Livestock Forage Grazed	8%	92%
No. of Acres Grazed	307 million	789 million
No. of Livestock Producers	31,000	1.6 million

1/ The public rangeland fee is based on the 11 western States.
2/ Average private rangeland rental rate for lands in 16 western States.

ADMINISTRATIVE FEASIBILITY

Figure 5.8 shows the costs of collecting data. The data costs are low for all fee systems and vary little among the systems, except for the Competitive Bid system. The Competitive Bid system has higher costs, but these costs are low relative to other costs of grazing management.

Figure 5.8: Summary of the Differences in Costs of the Fee Systems

Fee System	Difference per year from PRIA	Total Costs per Animal Month
PRIA (11 State baseline)	(0)*	($0.004)
PRIA (adjusted to 16 States)	+ $25,000	$0.005
Modified PRIA	+ $25,000	$0.005
Nonfee Costs	+ $25,000	$0.005
Modified Market Value	+ $25,000	$0.005
Livestock Prices	- $43,000	$0.003
Competitive Bid	+$250,000	$0.011

*Annual costs for PRIA are $75,000

In addition to the Government cost, the Competitive Bid alternative would involve additional costs to the permittees in preparing and submitting the bids. The Competitive Bid alternative may also involve additional costs to the Government and administrative workloads over those shown in Figure 5.7, if problems such as collusion arise.

Administration of any of the uniform westwide fee systems is straightforward, once agreement has been reached on the formula and the indexes to be used. A variable fee system allows the Government to tailor fees charged more closely to the specific economic circumstances of each region. However, a variable fee creates administrative complexities in determining the proper boundaries between fee regions. Almost inevitably, the exact boundaries are somewhat arbitrary. Permittees on one side of the boundary with higher fees will be unhappy about their relative fee disadvantage. As proposed, the Modified Market Value fee system would have the additional difficulty of monitoring the type of livestock more closely.

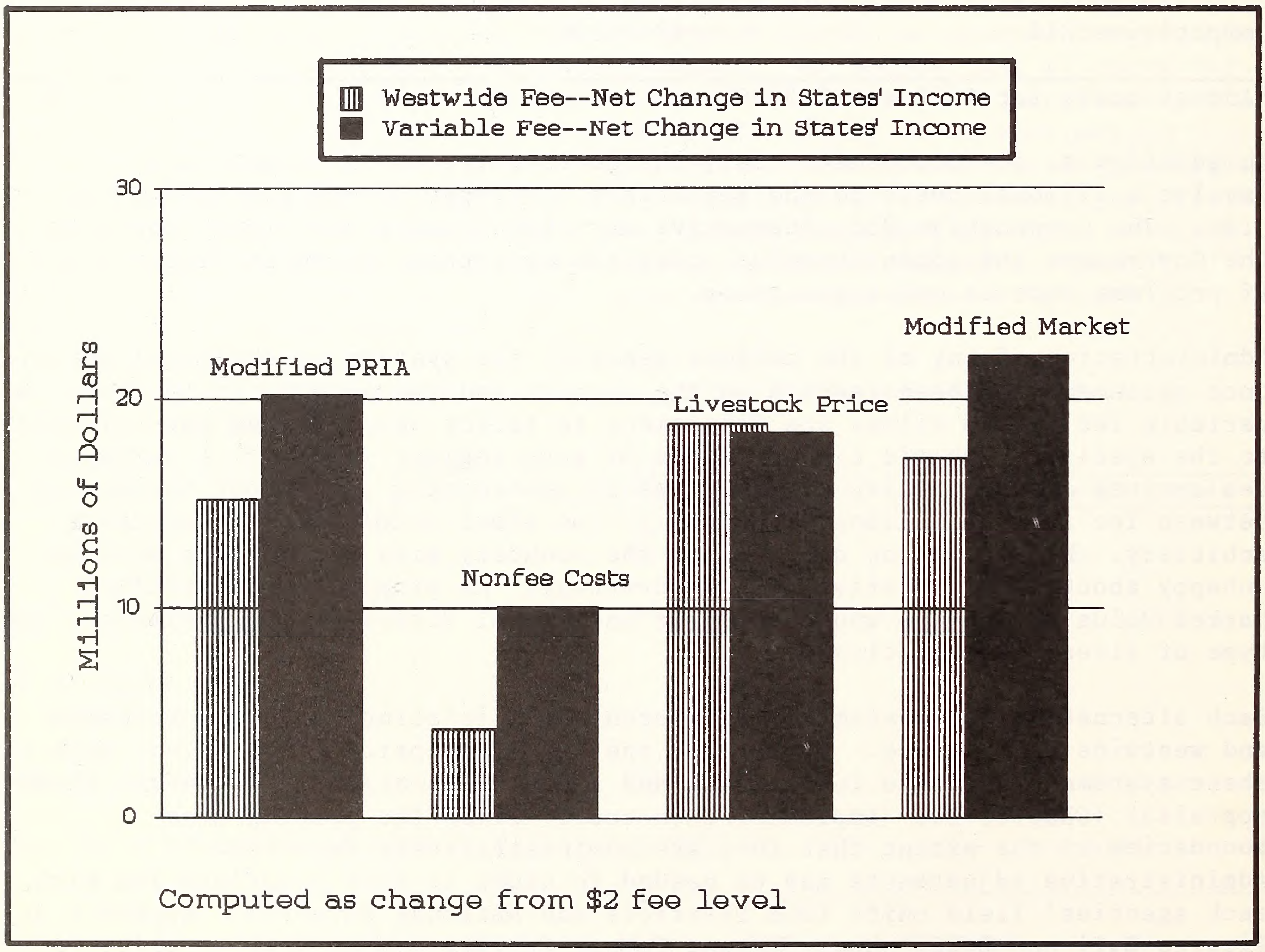
Each alternative fee system to the current PRIA is structured as a variable and westwide alternative. Except for the livestock price alternative, each of these systems uses price information and areas delineated in the market value appraisal (Chapter 2). Implementation could follow the pricing area boundaries to the extent that they are administratively feasible. Administrative adjustments may be needed in order to have a uniform fee with each agencies' field units (BLM Districts and National Forests). Appendix B, Figures B.21 and B.22, shows BLM and Forest Service administrative units in relationship to pricing areas.

CONSIDERATION OF NONFEDERAL GOVERNMENT AND COMMUNITY INTERESTS

The grazing fee should consider the needs of dependent rural communities, affected State and local governments, and others having an interest in the public rangelands. Alternative fee effects on other governments and the public are influenced in large part by the changes in State and county income resulting from grazing fee changes. The estimates of changes in State income were developed by the Forest Service using computer models. (See Appendix A for a display of impacts by State.)

As shown in Figure 5.9, changes in the grazing fees would be expansionary to the State economies in the short term. Permittee losses would offset by State gains as the additional revenues from the grazing fee receipts are used for range improvements or disbursed to State and county governments, resulting in increases in employment and income in the construction, finance, insurance, real estate, and trade industries. The changes displayed in Figure 5.8 are based on assumptions of permittees not being constrained in their ability to borrow additional operating funds. The results of changes in this assumption are displayed in Appendix A. In addition, the changes displayed do not consider changes in the distribution of Payments in Lieu of Taxes as a result of changes in the grazing fees.

Figure 5.9: Changes in State Income as a Result of Changes in the Grazing Fee

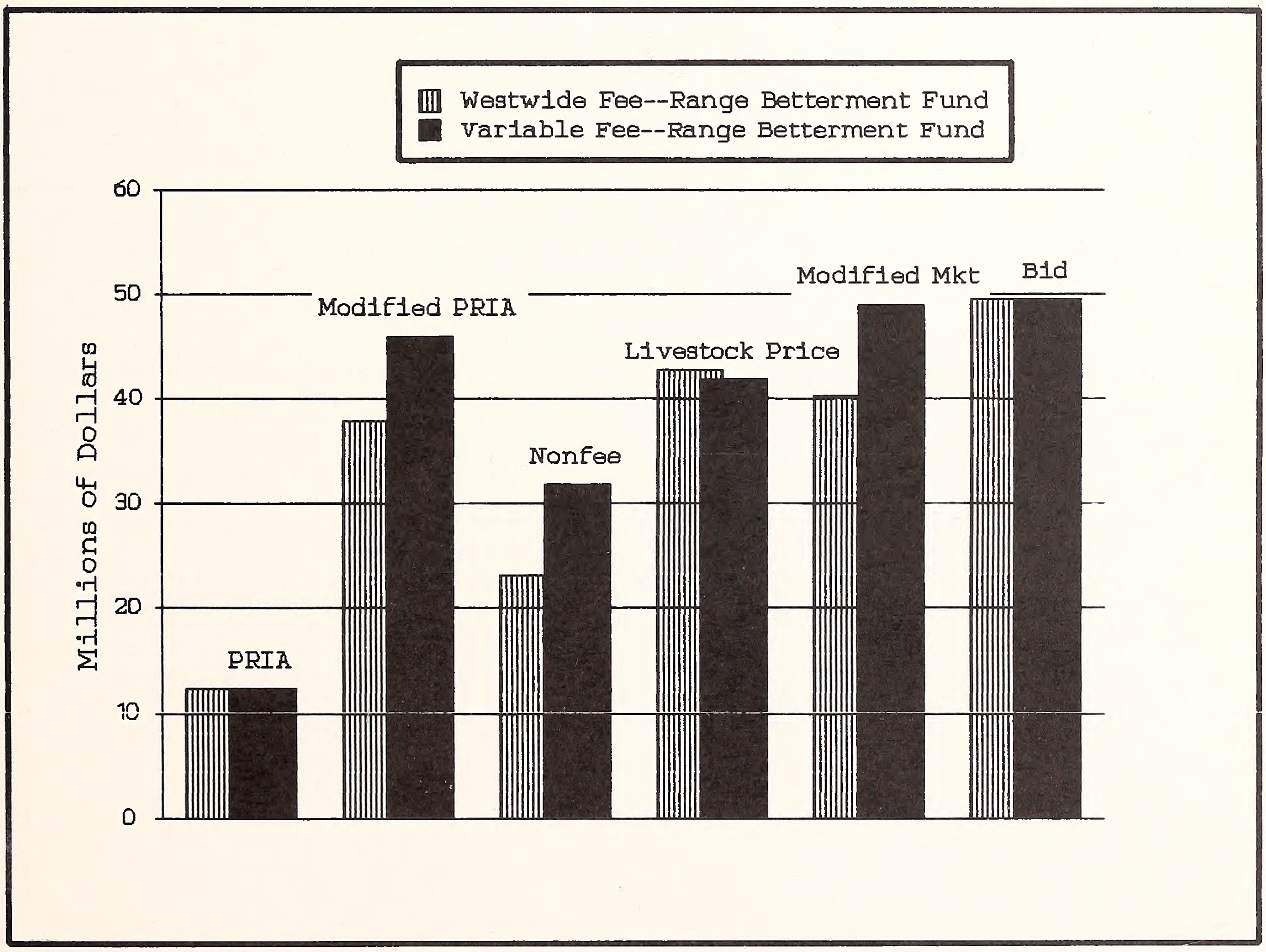


MULTIPLE-USE CONSIDERATIONS

The grazing fee system should promote range management that will maintain and improve range condition and related multiple-use benefits. Grazing fees influence range condition and multiple-use considerations in two ways: (1) changes in the grazing fees affect the amount of public and private money available for range improvement projects, and (2) changes in the grazing fee may impact the number of livestock grazing the public rangelands. Higher grazing fees generally reduce the amount of livestock grazing; however, grazing fees have never been set high enough to test the quantities of forage that would be taken at different price levels. Lower fees may appear to encourage overuse; however, this effect is not likely because the agencies set and enforce a maximum stocking level. In addition, the permittee's tenure encourages prudent taking of forage to avoid deterioration of the range over time. The impact of livestock numbers on range condition and multiple-use benefits is an area of uncertainty and is beyond the scope of this report.

Changes in funding for the Range Betterment Fund are directly proportional to changes in revenue as a result of the grazing fee. Changes in the Range Betterment Fund are displayed in Figure 5.10. As grazing fees increase, the amount of permittee contribution to range improvements is expected to decline. Records show that permittee contributions totaled $14 million from 1979 to 1983, or $0.16 per AUM.

Figure 5.10: Range Betterment Funds (50 Percent of the Grazing Fee Receipts)



APPENDIX

APPENDIX A

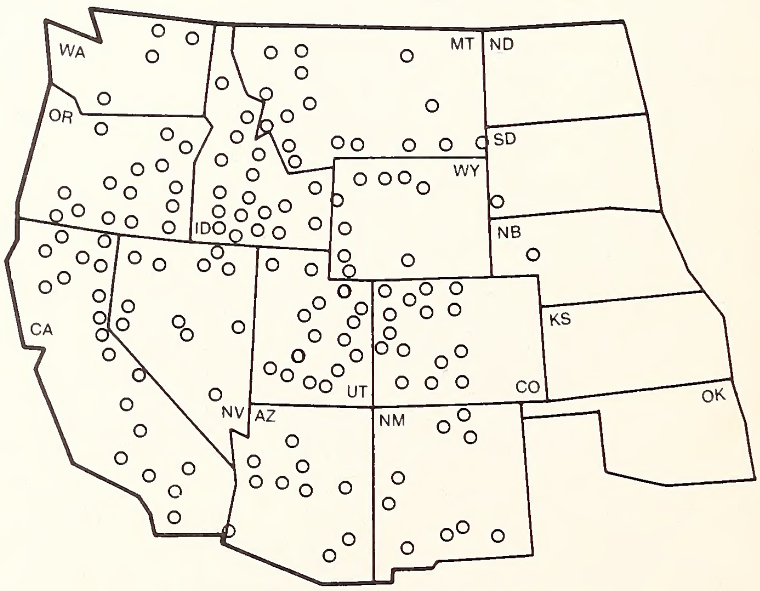
EFFECTS OF FEE LEVEL CHANGES ON STATES, SELECTED LOCAL ECONOMIES, AND GRAZING PERMITTEES

This appendix provides further background information and examines the sensitivity of specific factors such as: herd size, dependency of the permittee on public lands, State differences in economic conditions, the ability to borrow operating capital, and the economic viability of ranching operations. In addition, the appendix describes the changes in State and selected county economies and in the economy of a potential impacted county in each of the 13 States as a result of a range of possible changes in the grazing fee.

PERMITTEE INCOME EFFECTS

The analysis of economic effects on permittees is based on an ERS analysis of representative ranch budgets. The ERS developed 427 cattle budgets and 73 sheep budgets representing typical permittees' ranching operations in 13 Western States. Areas on which budgets were prepared are shown in Figure A.1. The budgets were aggregated to develop an average cattle and sheep budget for each State. The average budgets were used to develop a computer program that examined the changes in total sales, net returns above cash costs, and net returns with all costs covered, including capital replacement costs, as a result of changes in the grazing fee. A short-run analysis focuses on the returns above cash costs since cash costs must be covered for the rancher to remain in business. The rancher often can postpone payments for capital replacements, returns to management, and family labor. Therefore, if cash costs are covered, the rancher can stay in business, at least in the short run. In the long run, equipment must be replaced and some return must be given to land and management if the rancher is expected to stay in business. Therefore, net return is the indicator of long-run impacts. The analysis examines both short and long-term economic impacts.

Figure A.1: Geographic Locations Represented by Livestock Budgets



0 Areas with Budgets

The potential changes in the returns above cash costs are shown in Figure A.2. As the fee is increased in $2 increments, gross returns remain constant but the net return above cash costs declines, reflecting the increased cost of forage and associated costs of interest on operating capital. In every case, except Nevada at an $8 fee, the returns are positive, which means that in the short run the average producer would be able to cover production costs while maintaining current herd levels.

Figure A.2: Changes in the Returns Above Variable Cash Costs 1/ for an Average Livestock Operation at Different Grazing Fee Levels, 1982

State	Gross Income	Returns Above Cash Costs			
		$2.00 Fee	$4.00 Fee	$6.00 Fee	$8.00 Fee
Cattle:	dollars/cow				
Arizona	211	81	61	42	22
California	252	47	43	38	34
Colorado	289	73	65	58	50
Idaho	247	43	36	30	23
Montana	276	76	73	70	66
Nebraska	305	116	113	109	106
Nevada 2/	215	34	22	9	-4
New Mexico	238	92	78	64	50
Oregon	253	75	68	61	55
S. Dakota	229	33	29	25	22
Utah	220	37	26	15	4
Washington	284	75	71	67	63
Wyoming	263	79	73	66	60
Sheep 2/	dollars/ewe				
California	50	16	15	14	12
Colorado	61	24	23	21	19
Idaho	64	31	29	28	26
Montana	56	22	20	19	17
Nevada	53	26	23	21	18
New Mexico	49	23	20	18	15
Oregon	60	16	14	13	12
Utah	59	19	16	13	11
Wyoming	57	22	19	17	14

1/ Cash costs do not include value of family labor, capital replacement allowance (depreciation), or interest on investment.

2/ Sheep budgets were not prepared for Arizona, Nebraska, South Dakota, or Washington due to low numbers of sheep grazing public lands in these States.

Aggregate Impact: An aggregate analysis was developed as a basis for estimating the impacts of the various fee formulas. The economic impacts of the alternative fee levels in all States for both cattle and sheep operators are shown in Figure A.3 for a range of potential fees. While this table shows the aggregate, average impacts by State, it should be recognized that some grazing permittee ranchers in each of the herd size groups in all States may be adversely impacted.

Figure A.3: Economic Impacts of Alternative Grazing Fee Levels on Livestock Operations in All States - Cattle and Sheep

	Grazing Fee Levels			
	$2.00 Fee	$4.00 Fee	$6.00 Fee	$8.00 Fee
	millions of dollars			
Gross Income	1,135.0	1,135.0	1,135.0	1,135.0
Total Cash Costs	823.2	857.5	891.9	926.2
Feed Costs	422.8	455.2	487.5	519.7
Grazing Fees	32.0	64.3	95.0	126.2
Capital Replacement	141.6	141.6	141.6	141.6
Returns Above Cash Costs	311.8	277.5	243.1	208.8
Returns Above Cash Costs and Capital Replacement	170.2	135.8	101.5	67.1

The following describes the factors that may modify the impacts on individual permittees.

Level of Dependency: The level of dependency is important in analyzing the effects of fee changes. A cow herd dependent on public rangeland for 50 percent of its annual feed supply will be affected more by a fee increase than a herd that depends on the public range for only 10 percent of its feed.

Figure A.4 shows the average level of dependence of permittee herds on public rangelands. Producers in the arid southwest, where large amounts of public lands exist and grazing is yearlong, are the most dependent. Montana permittees have the lowest dependency level for cattle, averaging only 11 percent.

Most sheep producers with permits are quite dependent on public rangeland. Sheep permittees in New Mexico and Utah are dependent on public rangelands for almost half of their feed supply. Nevada permittees' dependency also was high, averaging more than 40 percent.

Figure A.4: Average Dependence Level of Permittee Livestock Businesses on Public Rangeland for Annual Feed Supply in 13 Western States, 1982

State	Cattle	Sheep
	percent	
Arizona	60	*
California	15	24
Colorado	25	37
Idaho	23	35
Montana	11	35
Nebraska	13	*
Nevada	36	43
New Mexico	44	49
Oregon	23	27
South Dakota	12	*
Utah	35	47
Washington	13	*
Wyoming	23	29

* Sheep budgets were not prepared in these States due to low numbers of sheep grazing public rangelands.

Livestock Price Cycles: The cattle industry has been cyclical with a cycle occurring about every 10 years. Prices for sheep tend to follow cattle prices. A typical cattle cycle can be described as follows. The cycle begins when producers respond to high cattle prices by increasing the number of cattle coming to market. More cattle come to market than the level that can sustain the high price, and prices fall. The producers respond to the lower prices by decreasing the number of cattle marketed. The decreased number of cattle do not meet consumer demand and prices increase. The increase in prices starts the cycle again.

The economic impact analysis presented in this report is based on 1982 prices. In 1982, cattle and sheep prices were depressed (the cattle cycle was on the down side), and grazing fee increases would cause most producers to operate at a loss.

Livestock Herd Size: The size of livestock operations dependent on public rangeland varies from a few head to several thousand head. Information on dependency by herd size is displayed in Figure 1.2, Chapter 1. Returns above cash costs by herd size for BLM and Forest Service permittees at different fee levels are shown in Figure A.5. Generally, permittees with medium size herds in the BLM and large size herds in the Forest Service are more economically efficient (they have higher returns above cash costs per cow). Fee changes may cause some changes in the size of cattle herds and possibly some nonuse of Federal rangelands. This will occur in each of the size groups, but predominate in the medium herd size groups of Forest Service permittees and the small herd size group for the BLM. The ERS estimates that westwide a 10 percent reduction in the permittees' cattle herd size could occur as fees are increased to the $8.85 breakeven level.

Figure A.5: Impacts of Alternative Grazing Fee Levels on Cattle Enterprise's Return Above Variable Cash Costs of Public Rangeland Permittees

Grazing Fee	Forest Service Small	Forest Service Medium	Forest Service Large	BLM Small	BLM Medium	BLM Large
	dollars per cow					
2.00	73	68	100	60	77	73
4.00	64	60	94	49	66	64
6.00	55	51	87	39	56	54
8.00	45	43	81	29	46	45

Ability to Borrow Operating Funds: The previous analysis was based on the assumption that the permittees had access to borrowed money to cover increased operating expenses. Increased grazing fees would generally necessitate increased borrowing to stay in business. The increased fees would also reduce the capitalized asset value of the ranches with grazing permits, depressing the appraised value of the permittee ranch for loan purposes. The change in asset value would derive from a reduction in the difference between the value of the grazing use to the permittees and the fee paid under the system that is implemented.

The potential reduction in borrowed funds in conjunction with a fee increase was examined for two States, Arizona with very high dependency on public rangeland but a relatively low level of capital requirement per cow and Montana with low dependency on public rangeland but a much higher capital requirement per cow due to high annual feed costs.

Because of the higher capital requirements, Montana permittees would be more impacted by limited capital than by changes in the grazing fee. A 10 percent reduction of borrowed capital would result in greater impacts than a fee increase of $8. Arizona permittees would be more impacted by grazing fee changes than the availability of borrowed capital with the greatest impacts occurring at the $8 fee level.

Effects on Permittee Asset Value: The public land permittees have tenure and use of public land grazing permits. The permits are generally tied to the base property and are reissued to the purchaser of the base property when the ranch is sold. The Forest Service requires the permits to be waived back to the Government when a ranch is sold, but they are generally reissued to the new owner. The permit value is the result of permittee capitalization of the difference between the fee paid for grazing on public lands and the market rental value of the grazing over time. The permit value is commonly considered in the private sector as the permittee's property. It is included in the market price and loan value of the property, although it is substantially discounted by lenders. The permittees contend that the premium paid to the outgoing permittee is a legitimate cost of doing business on the public rangelands and should be considered in establishing grazing fees.

The BLM and Forest Service position has historically been that permit values are not included as a cost factor in grazing fee formulas. This position has been challenged in Federal courts by permittees as a taking of their property. The Federal courts have affirmed the agency position. Recognition

of permit value would allow permittees to retain the capitalized value of a resource that belongs to the public. To include the permit value in the fee formula would keep the fee at a level lower than the market value.

Changes in the grazing fee change the permittee's asset position as a result of the changes in the value of the permit. No direct correlation exists between the change in permit value and the change in the grazing fee, so impacts on asset value cannot be estimated. Figure A.6 shows the 1983 value of the permit observed in the grazing rental appraisal.

Figure A.6: Value of the Public Land Permit Observed in the Grazing Rental Appraisal

	BLM/FS AUM's	LOW	HIGH	AVERAGE
		per head month		
Arizona	1,804,369	$75	$300	$114
California	944,597	$35	$92	$53
Colorado	1,597,434	$50	$200	$75
Idaho	2,747,787	$30	$150	$60
Kansas*	120			
Montana	1,837,335	$47	$133	$76
Nebraska	85,334	$120	$150	$140
Nevada	2,743,959	$33	$45	$40
New Mexico	2,880,010	$35	$348	$103
North Dakota	261,363	$50	$ 60	$53
Oklahoma*	475			
Oregon	1,442,014	$56	$60	$56
South Dakota*	95,814			
Utah	2,425,300	$42	$100	$50
Washington*	79,315			
Wyoming	2,594,592	$45	$75	$49
TOTAL**	21,539,818			
Weighted Average***				$68

*Not available or limited observations
**Total AUM's as reported in the appraisal
***Weighted by AUM's (minus AUM's in OK, SD, WA, KS)

COUNTY AND STATE EFFECTS

The effects of changes in public land grazing fees on counties and States depend on: (1) the responses of ranch operators to fee changes, (2) the interaction of these responses with the rest of the county and State's economy, (3) the structure of these economies and their dependency on the livestock business, and (4) the effects of reinjecting additional grazing fee receipts back into the economy through range improvement projects and disbursements to State and county governments.

The impacts on permittees of fee changes are described above. In the short run, expenditures for production goods are predicted to remain constant until herd size adjustments are made. Net return losses experienced by the permittees result in reduced household expenditures and increased financial

expenditures. The Forest Service and the BLM collect grazing fees, reinvest a portion of these receipts in range improvement projects, and disburse a portion of the receipts to State and local governments. As the grazing fee increases, the fee-related investment and disbursements increase, resulting in increased income and employment.

The county, State, and regional economic effects resulting from fee changes were evaluated three ways: (1) under the assumption of unlimited ability to borrow capital (this assumes the ability to borrow additional operating funds), (2) under the assumption of reduced ability to borrow, and (3) a worst case county analysis. A summary of this analysis appears below. These analyses do not reflect the effects of changes in Payment In Lieu of Taxes disbursments as a result of changes in the grazing fee.

Unlimited Ability to Borrow: The change in the State's economy as a result of permittee response and the change in Federal expenditures and disbursements is shown in Figure A.7.

The estimates of permittee responses are made using typical ranch budgets. Since some of the operators may have higher costs, the expansionary response may be overstated. Two important aspects of these responses should be noted. First, the general expansion of the State economies is gained at the expense of increased costs and borrowing among permittee ranching operations. Second, the distribution of the income and employment gains among the industries of each State's economy as a result of the disbursement of the receipts would be quite different from the distribution of losses incurred as a result of permittee responses. Income reductions would be borne largely by ranching enterprises although effects would be transmitted to many industries because of reduced consumptive spending. Net gains in income and employment would occur in most industrial sectors, especially the construction sector, as a result of increased spending on range improvements and increased spending by the State and local governments.

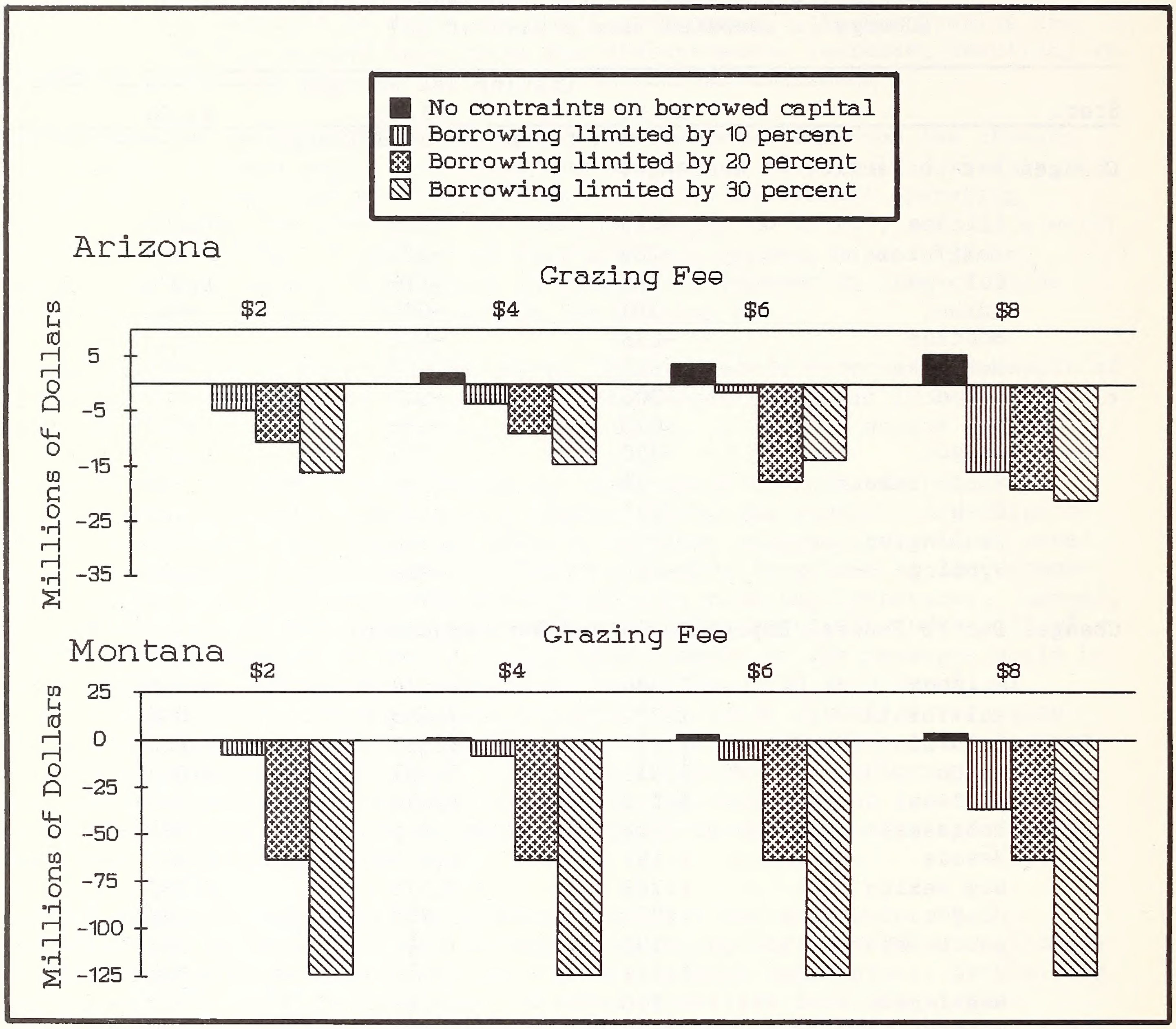
Reduced Access to Capital: The previous analysis was made under the assumption of unlimited ability to borrow operating capital. The sensitivity of this assumption was tested in two States, Arizona and Montana, by limiting the amount that could be borrowed. Arizona permittees have the highest dependency on public lands, 60 percent, and Montana permittees have the lowest dependency level at 11 percent. Figure A.8 shows the results of this analysis. Under the assumption of no limit on borrowed funds, increases in grazing fees are expansionary at the State level for both Arizona and Montana. This is shown by the solid bar in Figure A.8. However, as the ability to borrow capital is reduced in 10 percent increments, any degree of fee increase is contractionary (total community income, direct and secondary, would decline) for both States.

At the $2 fee level (no change level), a 10 percent reduction in the ability to borrow reduces the amount of income in both States. In Arizona, the income loss is compounded by grazing fee increases, whereas in Montana most of the negative impacts occur as a result of the reduced ability to borrow. Total employment would follow a similar trend.

Figure A.7: Summary of Changes in Total Regional Income at Alternative Fee Levels (cattle enterprises, thousands of 1977 dollars) (Charge is computed from a base of $2)

State	Grazing Fee per AUM $4.00	$6.00	$8.00
	thousands of dollars		
Changes Due to Permittees Response:			
Arizona	-413	-830	-1,245
California	-286	-571	-858
Colorado	-358	-716	-1,070
Idaho	-301	-604	-907
Montana	-238	-482	-723
Nebraska	-19	-38	-59
Nevada	-300	-602	-903
New Mexico	-318	-638	-956
Oregon	-350	-706	-1,058
South Dakota	-18	-36	-55
Utah	-291	-585	-879
Washington	-11	-21	-32
Wyoming	-199	-398	-598
Changes Due to Federal Expenditures and Disbursements:			
Arizona	2,284	4,570	6,856
California	1,332	2,665	4,001
Colorado	1,679	3,363	5,046
Idaho	1,615	3,231	4,845
Montana	1,515	3,030	4,546
Nebraska	128	257	387
Nevada	1,187	2,374	3,561
New Mexico	1,788	3,575	5,363
Oregon	1,873	3,748	5,623
South Dakota	103	207	312
Utah	1,174	2,350	3,525
Washington	170	341	513
Wyoming	1,120	2,239	3,359
Changes Due to the Combined Response:			
Arizona	1,871	3,740	5,611
California	1,045	2,093	3,142
Colorado	1,321	2,647	3,975
Idaho	1,314	2,627	3,938
Montana	1,276	2,549	3,824
Nebraska	108	219	239
Nevada	887	1,772	2,658
New Mexico	1,470	2,937	4,407
Oregon	1,523	3,042	4,566
South Dakota	85	172	256
Utah	883	1,765	2,646
Washington	159	320	481
Wyoming	921	1,841	2,761

Figure A.8: Effects of Ability to Borrow Restrictions and Grazing Fee Increases



Worst Case County Analysis: Impacts at the county level were based on a worst case analysis, using a slightly different computer program. A base fee of $1.40 is used to compute changes rather than the $2 reported previously. Finally, as described below, several assumptions are different from the previous analysis, so the results are not directly comparable. A county in each State was identified that was estimated to have the maximum impacts as a result of changes in grazing fees. The identified counties were generally highly dependent on public rangelands and had small economic bases. Changes in the grazing fee were investigated based on two assumptions: (1) that no change in the use of public lands was made as a result of the fee increase, and (2) that use of the public lands declined as a result of increased fees. Under the second assumption, a decline in use up to 50 percent is assumed as the fee is increased to the 1982 average private grazing lease rate for each State or $8.00 per AUM. The results of the analysis based on the second assumption are summarized here.

The permittee loses income as the fee increases, resulting in less spent on consumption goods. In addition, permittees decrease production expenditures as they reduce their herd sizes. The losses are partially compensated by increased Federal and local government expenditures as the fee increases. The possible total income loss and the percent income loss for the most impacted counties is shown in Figure A.9. Catron County in New Mexico and Owyhee County in Idaho are the most impacted by grazing fee changes, with the $8 fee resulting in a loss of 9 percent of the total county income.

Figure A.9: Estimated Total County Income Loss and Percent Loss of Total County Income as the Result of Grazing Fee Increase, Assuming Herds Would be Reduced, 1982 dollars

	Fee levels in dollars			
State, County	$2.00	$4.00	$6.00	$8.00
	thousands of dollars (%)			
AZ, Gila	548 (0.3)	960 (0.5)	*	*
CA, Modoc	73 (0.1)	289 (0.5)	464 (0.8)	609 (1.1)
CO, Gunnison	122 (0.2)	483 (0.7)	780 (1.1)	1,013 (1.4)
ID, Owyhee	419 (1.2)	1,601 (4.4)	2,558 (7.1)	3,287 (9.1)
MT, Beaverhead	184 (0.4)	729 (1.5)	1,181 (2.4)	1,519 (3.1)
NV, Elko	199 (0.3)	761 (0.6)	1,128 (0.9)	*
NM, Catron	188 (1.5)	722 (5.7)	1,087 (8.5)	1,125 (8.8)
ND, Billings	**	174 (1.9)	433 (4.7)	615 (6.7)
OR, Harney	435 (0.8)	1,629 (2.8)	2,632 (4.6)	3,293 (5.7)
SD, Fall River	**	151 (0.3)	381 (0.7)	571 (1.1)
UT, Millard	262 (0.6)	1,017 (2.4)	1,671 (3.9)	2,194 (5.1)
WA, Garfield	3 (**)	10 (0.1)	16 (0.1)	19 (0.1)
WY, Sublette	221 (0.7)	886 (2.8)	1,430 (4.5)	1,821 (5.7)

*Impacts of grazing fees are analyzed at rates below or equal to State private lease rates or $8 per AUM, whichever is smaller

**National Grasslands fees are $2.86, so impacts were not computed

Figure B.1 BLM Public Lands in the Western United States

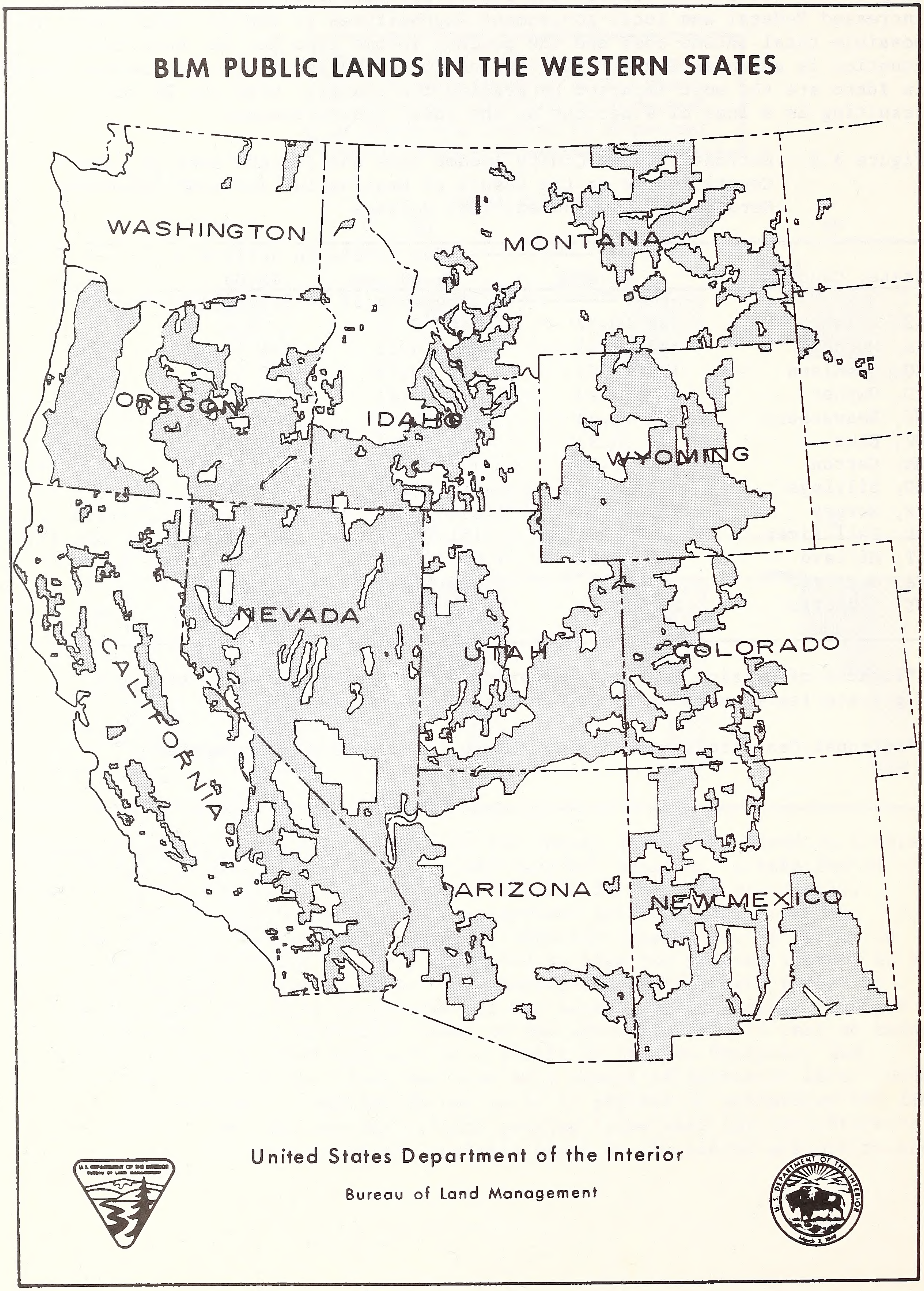


Figure B.2 Forest Service Public Lands in the Western United States

Public Rangelands Managed by the Forest Service, U.S. Department of Agriculture

Figure B.3 Information on Purchasing Grazing Fee Study Background Studies

Studies Available Through National Technical Information Service (NTIS):

The grazing fee study background documents listed below may be ordered from:

U.S. Department of Commerce
National Technical Information Service
Springfield, Virginia 22161

Rush Service: 800-336-4700
Information: 703-487-4660

Accession Number	Title, Author
PB85-128-296	Evaluation of the Forage Value Index, USDI, Bureau of Land Management, 1984 ($16.00)
PB85-128-304	Potential Impacts on Local Income and Employment of a Change in the Federal Grazing Fee (Case Studies of 13 Areas in the West), USDA, Economic Research Service, 1984 ($11.50)
PB85-128-312	The Impact of Alternative Federal Grazing Fees on Western Livestock Businesses, USDA, Economic Research Service, 1984 ($13.00)
PB85-128-320	A Theoretical Evaluation of the Fee Systems for Private Grazing on Federal Lands, USDA, Economic Research Service, 1984 ($14.50)
PB85-128-338	Estimated Impacts of Income and Employment in 13 Western States of Changes in the Federal Grazing Fee, USDA, Forest Service, 1984 ($14.50)
PB85-128-346	An Evaluation of the Beef Cattle Prices and Prices Paid Indexes Used in the Federal Grazing Fee Formula, USDA, Statistical Reporting Service, 1984 ($10.00)
PB83-237-248	Grazing Lease and Fee Arrangements of Western Governments and Agencies--a Study of Western State, Local Governments, and other Federal Agencies Grazing Lease Arrangements and User Charges, Colorado State University, 1983 ($23.50)
PB84-242-205	Fair Market Rental Value of Grazing on Public Lands, USDI, Bureau of Land Management, and USDA, Forest Service, 1984 ($61.50)

Figure B.3 continued

The appraisal data base may also be ordered from the NTIS on computer tape or microfiche. The computer data base is supplied complete with a copy of the appraisal. Buyers of the microfiche should be warned that a copy of the appraisal report is necessary in order to to use the microfiche reports. Costs and accession numbers follow.

Accession Number	Description
PB84-237-262	Computer tape and appraisal report. The computer tapes can be obtained in different densities and formats to accommodate use on different tape drives. Information can be obtained by calling Clara Cannon at (703) 487-4929 ($240.00 to $332.00)
PB84-242-213	Microfiche data base for all States ($40.00)
PB84-242-221	Microfiche data base for Arizona ($4.50)
PB84-242-239	Microfiche data base for California ($7.50)
PB84-242-247	Microfiche data base for Colorado ($8.00)
PB84-242-254	Microfiche data base for Idaho ($8.00)
PB84-242-262	Microfiche data base for Kansas ($4.50)
PB84-242-270	Microfiche data base for Montana ($8.00)
PB84-242-288	Microfiche data base for Nebraska ($4.50)
PB84-242-296	Microfiche data base for Nevada ($4.50)
PB84-242-304	Microfiche data base for New Mexico ($4.50)
PB84-242-312	Microfiche data base for North Dakota ($4.50)
PB84-242-320	Microfiche data base for Oklahoma ($4.50)
PB84-242-338	Microfiche data base for Oregon ($4.75)
PB84-242-346	Microfiche data base for South Dakota ($4.50)
PB84-242-353	Microfiche data base for Texas ($4.50)
PB84-242-361	Microfiche data base for Utah ($4.50)
PB84-242-379	Microfiche data base for Washington ($4.50)
PB84-242-387	Microfiche data base for Wyoming ($5.25)

Figure B.3 continued

In addition to the above studies available through NTIS, the following special study may be ordered from Oregon State University:

> Costs Incurred by Permittees in Grazing Livestock on Public Lands in Various Western States (EM 8283), Obermiller, Frederick W., and David K. Lambert, Oregon State University Extension Service, Oregon State University, Corvallis, Oregon ($3.00)

Figure B.4 Historical Summary of Grazing Fee Events

Year	Events
1897	First regulated use of Forest Reserves.
1906	First Forest Service fees were imposed on ranchers and settlers accustomed to free and unrestricted use.
1920	House Committee on Agriculture tried to get fees increased up to 300 percent (Forest Service opposed this attempt).
1920	Comprehensive Rachford study of 1920-24 was conducted to provide a basis for fair and justifiable fee.
1925	New fees from Rachford study was deferred because of objections from stockmen.
1928	New fees were put into effect to escalate to set levels in 4 years.
1933	Fees were reduced because of economic conditions.
1934	Taylor Grazing Act established control over grazing on the public domain and directed that reasonable fees would be charged.
1941	Saunderson (Forest Service) and Leech (Grazing Service) completed the range appraisal study on commercial grazing lease costs of an animal unit month of feed.
1941 to 1946	Congressional committees were in disagreement over grazing fees; House Subcommittee on Interior Appropriations deemed the fees too low and the Senate Subcommittee on Public Lands and Survey questioned the need to increase fees.
1942	Proposed grazing fee increase deferred because of the war, no increase during the duration.
1946	The Nicholson Report, November 12, 1946, recommended that grazing fees be based on administrative costs.
1952	Independent Agencies Appropriations Act called for user fees to be self-sustaining, uniform, and fair and equitable to the public and user.
1959	Bureau of Budget Circular A-25, called for fair market value.
1966	Western Livestock Grazing Survey to determine grazing costs and values.
1969	New fees system was implemented after review by industry, conservation, and farm groups. First of 10 incremental adjustments applied to reach FMV by 1978.

Figure B.4 continued

Year	Events
1969	Hearings on grazing fees were held by Public Lands Subcommittee of Senate and House Committees on Interior and Insular Affairs.
1969	The Secretaries of Agriculture and Interior were defendants in a New Mexico class action suit (Pankey vs. Freeman) and the Secretary of the Interior in Utah (Broadbent vs. Hickel) seeking injunctive relief against the 1969 grazing fee regulations and alleging the Secretaries acted illegally in failing to take capital investment into consideration.
1970	Moratorium on scheduled increases.
1971	Second of 10 incremental adjustments applied.
1972	Fees limited to a 3 percent increase over 1971.
1973	Third of 10 incremental adjustments applied, FMV to be reached by 1980.
1974	Fourth of 10 incremental adjustments applied.
1975	Moratorium on scheduled increase. The President said the schedule will be maintained to reach FMV by 1980.
1976	Scheduled adjustment applied.
	The Federal Land Policy and Management Act was signed on October 21; Section 401(a) directed that there would be no grazing fee increase in 1977 and also directed the Secretaries of Agriculture and the Interior to conduct a grazing fee study.
1977	Moratorium on scheduled increase.
	Report of Secretaries on grazing fees submitted to Congress on October 21, 1977.
1978	Public Rangelands Improvement Act (PRIA) of 1978 established a cost of production/ability to pay grazing fee formula for the 7-year period 1979-85. Report to be made to the Congress no later than December 1985.
1985	Report of the Forest Service and BLM on PRIA fee system and other optional fee systems to the Secretaries of Agriculture and the Interior for their 1985 report to Congress.

Figure B.4 continued

Year	Grazing Fee		Basis of Grazing Fee
Bureau of Land Management			
1935	No fee		
1936-1946	$0.05		Cost of administration
1947-1950	$0.08		Nicholson Report
1951-1954	$0.12		Reasonable fee
1955-1957	$0.15		Reasonable fee
1958	$0.19		100 percent of livestock price formula
1959-1960	$0.22		100 percent of livestock price formula
1961-1962	$0.19		100 percent of livestock price formula
1963-1965	$0.30		150 percent of livestock price formula
1966-1968	$0.33		150 percent of livestock price formula
Forest Service	(Average Fee*)		
	Cattle	Sheep	
1906-1916	$0.06	$0.02	Reasonable fee
1917-1927	$0.13	$0.04	Rental value of private range
1928-1931	$0.13	$0.04	Rachford Appraisal
1932-1935	$0.08	$0.02	Appraisal adjusted by livestock prices
1936-1944	$0.17	$0.04	Appraisal adjusted by livestock prices
1945-1954	$0.42	$0.10	Appraisal adjusted by livestock prices
1955-1964	$0.43	$0.16	Appraisal adjusted by livestock prices
1965-1968	$0.52	$0.11	Appraisal adjusted by livestock prices
Forest Service (FS) and Bureau of Land Management (BLM)			
	FS*	BLM	
1969	$0.60	$0.44	1969 Fair Market Value Formula**
1970	$0.60	$0.44	Moratorium
1971	$0.78	$0.64	
1972	$0.80	$0.66	Fee limited to 3% increase
1973	$0.91	$0.78	
1974	$1.11	$1.00	
1975	$1.11	$1.00	Moratorium
1976	$1.60	$1.51	
1977	$1.60	$1.51	Moratorium
1978	$1.60	$1.51	PRIA Fee Formula
1979	$1.93	$1.89	
1980	$2.41	$2.36	
1981	$2.31		(1st year both agencies had same fee)
1982	$1.86		
1983	$1.40		
1984	$1.37		
1985	$1.35		

*Forest Service areas had different base value, number represents the average value charged for the years shown.

**1969 Fee formula was uniform, each agency was to reach the fair market value in 10 years through the addition of ten annual increments (FS = $0.072, BLM = $0.09).

Figure B.5 Summary of Vacant Allotment Information, Forest Service and BLM

Office	# Allot	AUM's	Acres	Number of Allotments Cattle	Sheep	Other
Bureau of Land Management						
Arizona	1	0	10,099	1	0	0
California	1	161	1,981	1	0	0
Colorado	27	3,641	55,477	20	4	3
Idaho	7	5,328	72,143	6	1	0
Montana	78	2,229	49,084	78	0	0
Nevada	16	13,959	525,503	14	2	0
New Mexico	27	1,835	32,559	24	2	1
Oregon	16	716	21,080	16	0	0
Utah	22	7,349	154,418	12	9	1
Washington	14	623	5,215	14	0	0
Wyoming	20	10,295	52,709	16	4	0
Total Vacant	229	46,136	980,268	202	22	5
BLM Total	20,172	10,657,271	175,063,938	18,128	1,856	*
Vacancy Rate	1%	0%	1%	1%	1%	*
Forest Service						
Arizona	2	3,120	124,000	2	0	0
California	43	13,256	151,283	30	13	0
Colorado	80	20,622	503,711	15	24	41
Idaho	56	17,718	199,984	10	46	0
Montana	4	1,329	47,833	3	0	1
New Mexico	1	6,792	22,332	1		0
Oregon	9	6,190	190,250	4	5	0
Utah	4	4,670	88,395	0	4	0
Washington	5	2,572	77,907	2	3	0
Wyoming	35	8,862	261,700	8	27	0
Total Vacant	239	85,131	1,667,395	75	122	42
FS Total	13,089	9,760,968	99,829,149	7,474	1,613	*
Vacancy Rate	2%	1%	2%	1%	8%	*
Vacant BLM/FS	468	131,267	2,647,663	277	144	49
Total BLM/FS	33,261	20,418,239	274,893,087	25,602	3,469	*
Vacancy Rate	1%	1%	1%	1%	4%	*

* Other allotments were either not classified as to animal kind or were combination sheep and cattle allotments.

Based on preliminary information provided by Drs. Bruce Godfrey and Darwin Nielsen, Utah State University, Logan, Utah

Figure B.6 Number of Public Land AUM's by State, 1983

State	Forest Service FS-AUM's	Forest Service FS-AM's*	Bureau of Land Management Sec. 15	Bureau of Land Management Sec. 3	Bureau of Land Management BLM-Total	Total BLM/FS
			1983			
Arizona	1,488,319	1,240,266	154,638	462,345	616,983	1,857,249
California	630,747	525,623	142,050	200,598	342,648	868,271
Colorado	946,167	788,473	48,152	490,210	538,362	1,326,835
Idaho	943,870	786,558	34,795	1,063,926	1,098,721	1,885,279
Kansas			244		244	244
Montana	664,548	553,790	243,803	959,130	1,202,933	1,756,723
Nebraska	99,960	83,300	1,257		1,257	84,557
Nevada	351,723	293,103	20,856	1,431,710	1,452,566	1,745,669
New Mexico	954,539	795,449	232,809	1,259,952	1,492,761	2,288,210
North Dakota			9,718		9,718	9,718
Oklahoma	6,663	5,553	475		475	6,028
Oregon	568,801	474,001	93,317	943,532	1,036,849	1,510,850
South Dakota	133,095	110,913	74,563		74,563	185,476
Utah	750,990	625,825		919,227	919,227	1,545,052
Washington	135,442	112,868	30,155		30,155	143,023
Wyoming	620,188	516,823	466,735	1,168,267	1,635,002	2,151,825
Total	8,295,052	6,912,543	1,553,567	8,898,897	10,452,464	17,365,007
			1982			
Arizona	1,396,981	1,164,151	155,592	440,326	595,918	1,760,069
California	601,806	501,505	243,502	243,097	486,599	988,104
Colorado	960,300	800,250	53,694	456,732	510,426	1,310,676
Idaho	933,274	777,728	40,317	1,101,472	1,141,789	1,919,517
Kansas			244		244	244
Montana	666,241	555,201	168,157	969,010	1,137,167	1,692,368
Nebraska	102,665	85,554	1,257		1,257	86,811
Nevada	356,501	297,084	49,787	1,558,334	1,608,121	1,905,205
New Mexico	950,010	791,675	283,370	1,354,404	1,637,774	2,429,449
North Dakota			9,718		9,718	9,718
Oklahoma	6,035	5,029	475		475	5,504
Oregon	574,137	478,448	79,924	916,181	996,105	1,474,553
South Dakota	128,989	107,491	74,563		74,563	182,054
Utah	719,967	599,973		945,538	945,538	1,545,511
Washington	129,415	107,846	30,155		30,155	138,001
Wyoming	621,022	517,518	463,593	1,166,934	1,630,527	2,148,045
Total	8,147,343	6,789,452	1,654,348	9,152,028	10,806,376	17,595,828

* Forest Service AUM's are converted to a unit that is similar to BLM AUM's by dividing by 1.2

Figure B.7 Forest Service Maintenance Expenditures by Permittees, by Region, 1979-1983

Maintenance Expenditures, Total Dollars

Region	1979	1980	1981	1982	1983	1979-1983
1	255,501	231,690	173,725	166,630	173,911	1,001,457
2	348,750	543,650	432,259	521,747	467,683	2,314,089
3	490,501	236,979	176,219	830,432	997,176	2,731,307
4	869,945	620,971	600,877	747,260	750,031	3,589,084
5	257,218	337,472	202,608	245,514	209,439	1,252,251
6	261,378	174,888	254,447	225,095	269,281	1,185,089
Total	2,483,293	2,145,650	1,840,135	2,736,678	2,867,521	12,073,277

Authorized AUMS*

Region	1979	1980	1981	1982	1983	1979-1983
1	1,145,118	1,173,446	1,159,773	1,164,015	1,158,521	5,800,872
2	1,846,487	1,797,147	1,804,864	1,809,678	1,825,118	9,083,294
3	2,008,718	1,940,898	1,974,503	2,022,959	2,109,381	10,056,459
4	1,866,207	1,922,390	1,930,210	1,906,524	1,925,946	9,551,277
5	450,178	453,191	441,713	472,718	496,927	2,314,727
6	602,461	599,338	625,216	621,301	618,248	3,066,563
Total	7,919,167	7,886,410	7,936,279	7,997,196	8,134,140	39,873,192

Maintenance Dollars per AUM

Region	1979	1980	1981	1982	1983	1979-1983
1	0.22	0.20	0.15	0.14	0.15	0.17
2	0.19	0.30	0.24	0.29	0.26	0.25
3	0.24	0.12	0.09	0.41	0.47	0.27
4	0.47	0.32	0.31	0.39	0.39	0.38
5	0.57	0.74	0.46	0.52	0.42	0.54
6	0.43	0.29	0.41	0.36	0.44	0.39
Average	0.31	0.27	0.23	0.34	0.35	0.30

* Forest Service AUM's converted to AM (similar to BLM's AUM) by dividing by 1.2

Figure B.8 Differences Between Private Leased and Public Grazing Lands

PRIVATE GRAZING AGREEMENTS	PUBLIC RANGELAND PERMITS/LEASES
FORM	
Typically oral "handshake" agreements.	Written leases/permits
TENURE	
Typically 1-year but renewed year after year unless there is a specific cause for nonrenewal. Typical renewal procedure may be as simple as a Christmas card note, accompanied by a check for the following year's lease period.	10 year leases/permits. Renewed upon written application and acceptance of any specific changes in terms and conditions.
TERMS AND CONDITIONS	
Typically no written documentation. General understanding between the parties that property is not to be abused and returned at the end of term of use in at least as good shape as received. If lessee fails to maintain the condition of the property, the agreement will be terminated or not renewed. No established process for handling disagreements other than the civil courts.	Detailed general terms and conditions contained in published regulations plus specific stipulations for the individual leases/permits. May be held for cancellation for specific cause with rights of appeal to higher administrative bodies with the burden of proof on the agency.
PAYMENT SCHEDULES	
The private agreements show a fairly even mix of payments at the beginning of the use period with various combinations of partial advance, periodic, and end of the season payments.	Generally the permits/leases provide for full payment in advance. There are, however, many situations in which split billings and payment at the end of the grazing season are employed.
SEASONS AND PERIODS OF USE	
The parties to the transactions have a general understanding as to when and for how long the lands are to be used for grazing, but actual use periods are more or less dictated by prevailing local weather conditions. These generally allow for a certain amount of flexibility in turn out and roundup dates.	The permits/leases provide fairly strict periods and dates of use, based on history of local weather conditions. They allow only a minimum amount of flexibility in adjusting turn out and roundup dates.

Figure B.8 continued

PRIVATE GRAZING AGREEMENTS	PUBLIC RANGELAND PERMITS/LEASES
NONUSE	
In general, lessees in private agreements pay the agreed price whether they graze their livestock or not. Failure to pay would result in the loss of the right to use the property in future years. Someone else would normally use the land for that season and probably for subsequent years as well.	Pertinent agency regulations allow permittees/lessees to take nonuse, whereby he/she retains their grazing privileges and do not have to pay the fees for the specified grazing period. Nonuse is granted for up to 3 consecutive years, and with justification may exceed 3 years.
PENALTIES FOR EXTRA ANIMALS	
Typically, lessees are required to pay the agreed price for all animals grazed, but there is normally no penalty such as increased rates for grazing more animals than agreed on.	Agency regulations provide for penalties in the form of increased rates plus possible reductions in use or total loss of privileges for repeated offenses or in extreme circumstances. They would have the right of appeal on any such actions.
REFUNDS FOR FEWER ANIMALS	
Normally, lessees in private agreements do not receive refunds in cases where they run fewer animals than planned. There are exceptions, cases of severe drought, fire, and other natural "disaster" situations.	Agency regulations contain provisions which allow for refunds for most situations in which the permittee/lessee runs fewer animals than were covered by billings and payments.
CONSTRUCTION OF IMPROVEMENTS	
Routine structural range improvements (for example drift fences) are generally done by the lessee, in some cases with materials provided by the landowner. The landowner bears a substantial part of the cost of major range improvements (i.e., water developments), either directly or through reductions in rent until the construction has been completed. Revegetation is typically handled by the landowner or credited if done by the lessee. In all cases, range improvements of a permanent nature are done with the landowner's consent and with prior agreement that ownership rests with the landowner upon completion.	Improvements on permits/leases can be done in a variety of ways, by the permittee/lessee, with materials being furnished by the agency; by the agency with contract or force account crews; or by the agency with contributed funds from the permittee/lessee and third parties such as wildlife agencies, advisory boards, etc. Permittee/lessee retains interests in these improvements, but in most cases title to improvements rest with the government.

Figure B.9 Summary of Public and Private Costs Per Animal Unit Month for Grazing in the Western States, 1966

Cost Items	Cattle: Public Costs	Cattle: Private Costs	Sheep: Public Costs	Sheep: Private Costs
Lost animals	$0.60	$0.37	$0.70	$0.65
Association fee	0.08	....	0.04	0.11
Veterinary	0.11	0.13	0.11	0.11
Moving livestock to and from	0.24	0.25	0.42	0.38
Herding	0.46	0.19	1.33	1.16
Salt and Feed	0.56	0.83	0.55	0.45
Travel to and from	0.32	0.25	0.49	0.43
Water	0.08	0.06	0.15	0.16
Horse	0.16	0.10	0.16	0.07
Fence maintenance	0.24	0.25	0.09	0.15
Water maintenance	0.19	0.15	0.11	0.09
Development depreciation	0.11	0.03	0.09	0.02
Other costs	0.13	0.14	0.29	0.22
Total nonfee costs	3.28	2.75	4.53	3.89
Private lease rate (1966)	(1.26)	1.79	(1.13)	1.77
Total Costs	4.54	4.54	5.66	5.66
Difference between total private/public fee and nonfee costs	$1.26		$1.13	
Combined cattle and sheep (weighted average; cattle 80%, sheep 20%)		$1.23		

Note: These were data developed by the Grazing Fee Technical Committee from analysis of 1966 survey data. Public costs are livestock operation costs on both FS and BLM allotments. Private costs are livestock operation costs on leased private grazing lands. Combined difference for cattle and sheep is weighted by the number of AUMs of grazing by cattle and sheep on public land.

Figure B.10 Percent of Beef Cattle Marketings, Percent of Private Leases Reported by AUM, and Percent of Combined Forest Service-BLM AUM's

State	FS/BLM AUM's	Beef Cattle Marketings	Private Leases (AUM)
	----------------	percent of total	----------------
Arizona	9.3	2.1	0.5
California	5.3	7.9	3.4
Colorado	7.7	13.9	5.9
Idaho	10.3	4.2	2.7
Kansas	0.2	16.1	21.6
Montana	9.0	2.6	14.7
Nebraska	0.6	28.9	17.4
Nevada	10.1	*	0.2
New Mexico	13.1	0.6	0.5
North Dakota	2.6	1.8	8.1
Oklahoma	0.1	4.0	4.0
Oregon	7.9	0.8	5.4
South Dakota	2.4	10.6	5.4
Utah	8.2	0.5	1.3
Washington	0.9	5.0	5.7
Wyoming	12.1	1.0	3.3

* Marketing data is not available for Nevada

B.11 Construction of the ICI

CONSTRUCTION OF MODIFIED ICI

The modified ICI is based on the distribution of the total cash expenses for the production costs of cow-calf operations of all sizes in the western United States. Data for 1980 through 1983 are published in the ERS Economic Indicators of the Farm Section: Costs of Production. The distribution of expenses for 1984 is a projection. The following table shows the distribution of expenses which are used for weighting and the selected components used to compute the ICI.

Distribution of Cash Expenses for Cost of Production per cow for Western cow-calf operations (1980-84) 1/				Prices Paid Index Components used to compute ICI	
	Percent of Total				
	Range				
Expense	Low	High	Average	Component	Weight Assigned
Feed	41.9	43.2	42.6	Feed	42.6
Veterinary & Medicine	2.2	2.6	2.5	Farm Services & Cash Rent	2.5
Livestock Hauling	0.9	1.1	1.0	Farm Services & Cash Rent	1.0
Marketing	1.2	1.5	1.4	Farm Services & Cash	1.4
Fuel, Lube & Electricity	6.3	7.2	6.7	Fuels & Energy	6.7
Machinery Repairs	6.4	7.8	7.2	Tractor & S-P Mach	7.2
Hired Labor	8.3	8.8	8.5	Wage Rates	8.5
General Farm Overhead	4.4	5.3	4.8	Building & Fenching	4.8
Taxes & Insurance	5.9	7.3	6.3	Taxes	6.3
Interest	17.9	19.9	19.0	Interest - NonReal Estate 2/	19.0
Total	----	----	100.0	Total	100.0
Average Total Cash Expense			$250	----	------

1/ Total Cash Expenses based on Cost of Production Budget by Cost per Cow for Cow-Calf Operations, All Herd Sizes, West Region. Published in Economic Indicators of the Farm Sector - - Cost of Production issued by Economic Research Service. Data used for 1984 unpublished projections.

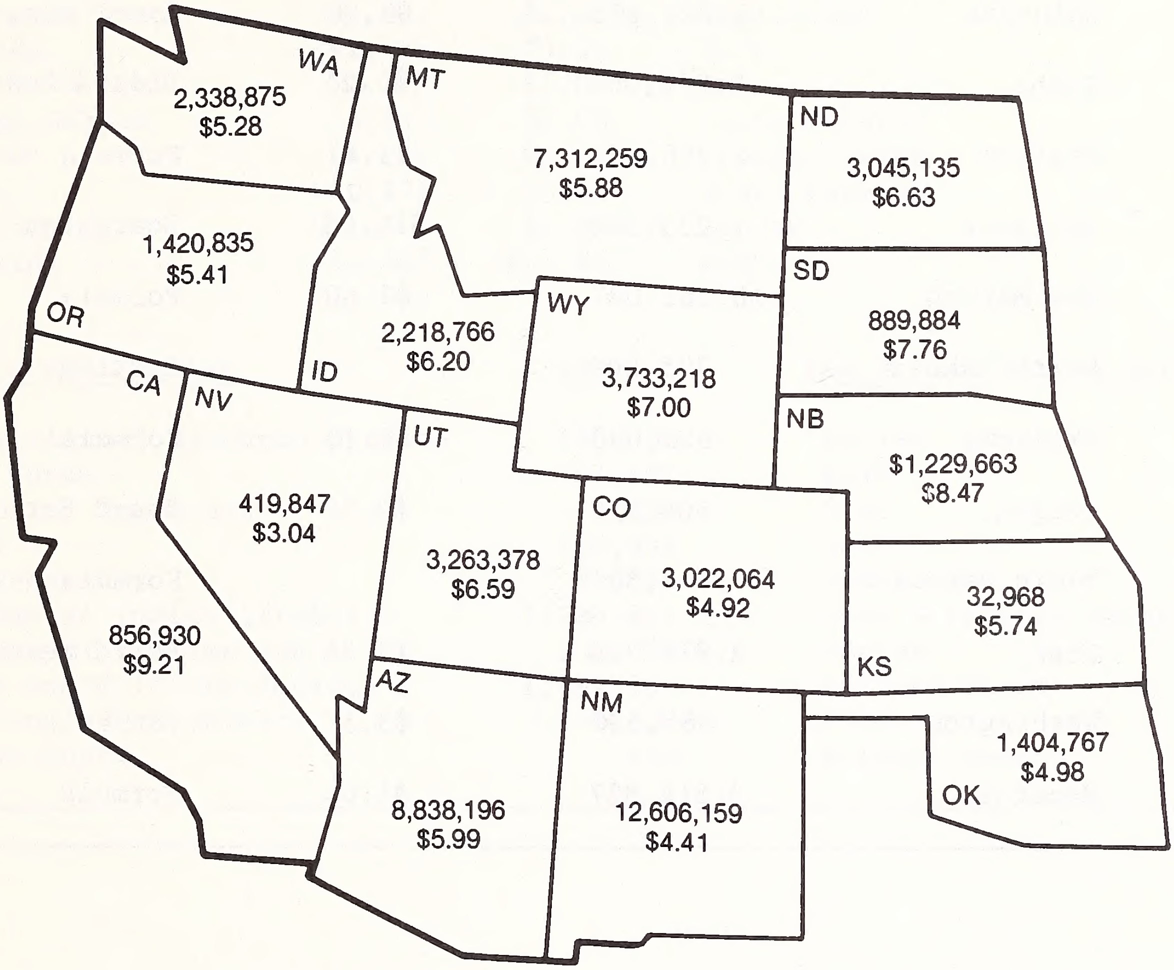
2/ Interest Rate for non-real estate loans based on data from ERS Economic Indicators of the Farm Sector: Income and Balance Sheet.

February 1985

Figure B.12 Comparison of National Prices Paid for Production Index (PPI), PRIA's Prices Paid Index (PRIA-PPI) Consumer Price Index (CPI), and the Input Cost Index (ICI)

Year	National PPI	PRIA-PPI	CPI	ICI
	(1910-14=100)	(1964-68=100)	(1967=100)	(1944-68=100)
1964	270	95	93	96
1965	277	97	95	98
1966	289	99	97	101
1967	290	103	100	104
1968	290	107	104	101
(1964-1968)	(283.2)	(100)	(97.2)	(100)
1969	302	113	110	107
1970	313	118	116	112
1971	328	124	121	117
1972	351	130	125	117
1973	424	140	133	144
1974	481	168	148	173
1975	528	198	161	182
1976	559	215	171	187
1977	579	230	181	194
1978	628	246	194	197
1979	720	275	215	220
1980	798	319	245	248
1981	855	359	270	279
1982	865	378	288	274
1983	884	387	297	277
Increase over base	884/283.2= 312%	387/100= 387%	298/97.2= 307%	277/100= 277%

Figure B.13 Number of Acres of Government Grazing Lands and the Combined Average of State, Local, and Federal Agency Grazing Fees



Excluding BLM and the Forest Service (Dollars per AUM)

Figure B.14 Grazing Fees Colleced by State Land Boards or Education Departments for 1981

State	Acres	$/AUM	Fee Determination
Arizona	8,775,023	$1.43	Formula
California	92,877	$1.70	Varies
Colorado	2,724,698	$3.00	Board Set
Idaho	2,090,000	$4.25	Bids & Board Set
Montana	4,090,430	$3.47	Formula
Nebraska	1,235,346	$14.00	Board Set
New Mexico	10,962,097	$1.60	Formula
North Dakota	705,000		Auction
Oklahoma	625,000	$5.70	Formula
Oregon	607,916	$2.50	Board Set
South Dakota	845,305		Formula
Utah	2,814,726	$2.36	Board Set
Washington	885,638	$3.37	Varies
Wyoming	3,614,887	$1.65	Formula

Figure B.15 Summary of Statistics for State Wildlife Agencies and Other Federal Agencies, 1981

State	Acres	$/AUM	Fee Determination Method
Wildlife Agencies			
Colorado	50,000	$8.00	Bids
Idaho	4,800	$8.50	Bids
Kansas	8092	10.21	Bids
Montana	n.a.	$11.00	Bids
Nebraska	1,003	$6.45	Negotiated
Nevada	91,045	$4.00	Bids
New Mexico	60,000	$5.00	Bids
North Dakota	13,450	$7.00	Private Rates
Oregon	79,921	$5.84	Private Rates
Utah	140,174	$5.44	Bids, Formula
Washington	163,715	$4.25	Varies
Wyoming	54,347	$11.00	Bids

Other Federal Agencies	Acres	Fee Determination Method
Agricultural Research Service	165,735	Varies
Air Force	87,102	Bids
Corps of Engineers	421,241	Bids
Army	155,492	Bids
Navy-Marines	85,818	Bids
Bureau of Indian Affairs	7,900,841	Bids + Private Rates
Bureau of Reclamation	230,556	Varies
Fish and Wildlife Service	1,987,569	Private Rates
National Park Service	1,606,651	PRIA
Coast Guard	225	Private Rates

Figure B.16 Fee and Nonfee Costs for Idaho

Idaho	BLM	FS	Average	Private
	$/AUM			
Turn-Out	0.99	1.07	1.03	0.69
Gathering	3.26	3.64	3.44	0.97
Management-Total	4.08	4.75	4.41	3.73
Maintenance	2.23	0.84	1.55	1.55
Salt/Feed/Med.	0.16	0.22	0.19	0.22
Meetings/Paper.	0.80	0.27	0.54	0.01
Death Loss	3.13	3.44	3.28	0.37
Fees & Rent	2.24	3.18	2.70	7.77
Other	0.17	0.13	0.15	0.00
Total	17.06	17.54	17.29	15.31
# Observations	37	35	72	11

Costs Incurred by Permittees in Grazing Livestock on Public Lands in Various Western States (EM 8283), Obermiller, Frederick W., and David K. Lambert, Oregon State University Extension Service, Oregon State University, Corvallis, Oregon, 1984.

Figure B.17 Fee and Nonfee Costs for Oregon

	BLM			Forest	Gov.	
Oregon	Malheur	Baker	Harney	Service	Ave.	Private
	$/AUM					
Turn-Out	0.54	0.86	1.27	0.99	1.01	1.18
Gathering	0.81	2.92	1.66	3.24	2.44	1.29
Management	1.15	4.29	1.72	4.24	3.12	1.16
Maintenance	0.49	1.76	0.75	1.82	1.33	0.64
Salt/Feed/Med.	0.29	0.40	0.42	0.32	0.36	0.35
Meetings/Paper.	0.48	0.53	0.18	0.22	0.27	0.03
Death Loss	2.06	2.48	2.68	1.94	2.26	1.27
Fees & Rent	1.90	2.28	1.85	2.64	2.27	8.06
Other	0.18	2.01	0.61	0.64	0.76	0.05
Total	7.90	17.53	11.14	16.05	13.82	14.03
# Observations	15	18	45	64	142	23

Costs Incurred by Permittees in Grazing Livestock on Public Lands in Various Western States (EM 8283), Obermiller, Frederick W., and David K. Lambert, Oregon State University Extension Service, Oregon State University, Corvallis, Oregon, 1984.

Figure B.18 Fee and Nonfee Costs for Nevada, Wyoming, and the Black Hills National Forest, South Dakota

	Wyoming BLM/FS	Wyoming Deeded	Black Hills Forest	Nevada
	$/AUM			
Turn-Out	1.28	0.42	2.06	0.58
Gathering	2.30	0.87	3.34	1.19
Management-Total	3.14	2.44	5.79	2.62
Maintenance	1.86	1.25	2.39	0.92
Salt/Feed/Med.	0.35	0.60	0.44	0.70
Meetings/Paper.	0.43	0.07	0.35	0.13
Death Loss	3.00	0.95	2.74	2.36
Fees & Rent	1.41	0.65	1.53	1.64
Other	0.63	0.29	1.37	0.25
Total	14.40	7.54	20.01	10.39
# Observations	146	66	89	75

Costs Incurred by Permittees in Grazing Livestock on Public Lands in Various Western States (EM 8283), Obermiller, Frederick W., and David K. Lambert, Oregon State University Extension Service, Oregon State University, Corvallis, Oregon, 1984.

Figure B.19 Fee and Nonfee Costs--Weighted Average, BLM and Forest Service

Cost Categories	$/AUM*	%	$/AUM	%	Cost Categories
1982 - 1983			1966		
Turn-Out/Gathering	3.72	25%	.91	23%	Moving/Herding
Management	3.68	25%	.61	16%	Travel/Water/Horse
Maintenance	1.63	11%	.38	10%	Maintenance
Salt/Feed/Medicine	0.40	3%	.67	17%	Salt/Feed/Veterinary
Death Loss	2.70	18%	.62	16%	Loss Animals
Fees/Association	1.87	17%	.47**	12%	Fees/Association
Other (meetings/paper)	1.02	6%	.25	7%	Other/Depreciation
Total	15.02	100%	3.93	100%	

Average Increase 15.02/3.93 = 382%

Average Increase, non fee costs only 13.15/3.46 = 380%

* Dollars per AUM based on values in State tables weighted by the number of observations.

** Weighted average of $.33 BLM fee and $.51 FS fee plus $.08 association fee.

Figure B.20 Examples of Values Obtained in Livestock Price Formula Under Different Assumptions of Percent to Government and Calf Weights

Data Years	Fee Years	Plains	Mountain	West Coast	16-State
		Fee Calculated--10% Government, 425 lb. calf			
1974-1979	1980	$1.68	$1.69	$1.51	$1.67
1975-1980	1981	$2.06	$2.07	$1.83	$2.04
1976-1981	1982	$2.30	$2.32	$2.05	$2.29
1977-1982	1983	$2.47	$2.49	$2.21	$2.46
1978-1983	1984	$2.54	$2.56	$2.27	$2.53
1979-1984	1985	$2.37	$2.41	$2.15	$2.38
		Fee Calculated--20% Government, 300 lb. calf			
1974-1979	1980	$2.38	$2.38	$2.13	$2.35
1975-1980	1981	$2.91	$2.93	$2.58	$2.88
1976-1981	1982	$3.25	$3.27	$2.89	$3.23
1977-1982	1983	$3.49	$3.51	$3.11	$3.47
1978-1983	1984	$3.58	$3.62	$3.21	$3.57
1979-1984	1985	$3.34	$3.41	$3.03	$3.36
		Fee Calculated--10% Government, 300 lb. calf			
1974-1979	1979	$0.98	$0.99	$0.90	$0.98
1975-1979	1980	$1.19	$1.19	$1.07	$1.18
1976-1980	1981	$1.46	$1.46	$1.29	$1.44
1977-1981	1982	$1.63	$1.64	$1.45	$1.62
1978-1982	1983	$1.75	$1.76	$1.56	$1.74
1979-1983	1984	$1.79	$1.81	$1.60	$1.79
1980-1984	1985	$1.67	$1.70	$1.52	$1.68
		Fee Calculated--20% Government, 500 lb. calf			
1974-1979	1979	$3.27	$3.31	$3.01	$3.28
1975-1979	1980	$3.96	$3.97	$3.55	$3.92
1976-1980	1981	$4.85	$4.88	$4.31	$4.80
1977-1981	1982	$5.42	$5.46	$4.82	$5.39
1978-1982	1983	$5.82	$5.86	$5.19	$5.79
1979-1983	1984	$5.96	$6.03	$5.34	$5.95
1980-1984	1985	$5.57	$5.68	$5.06	$5.61

Figure B.21 Bureau of Land Management Administrative Units in Relationship to Pricing Areas

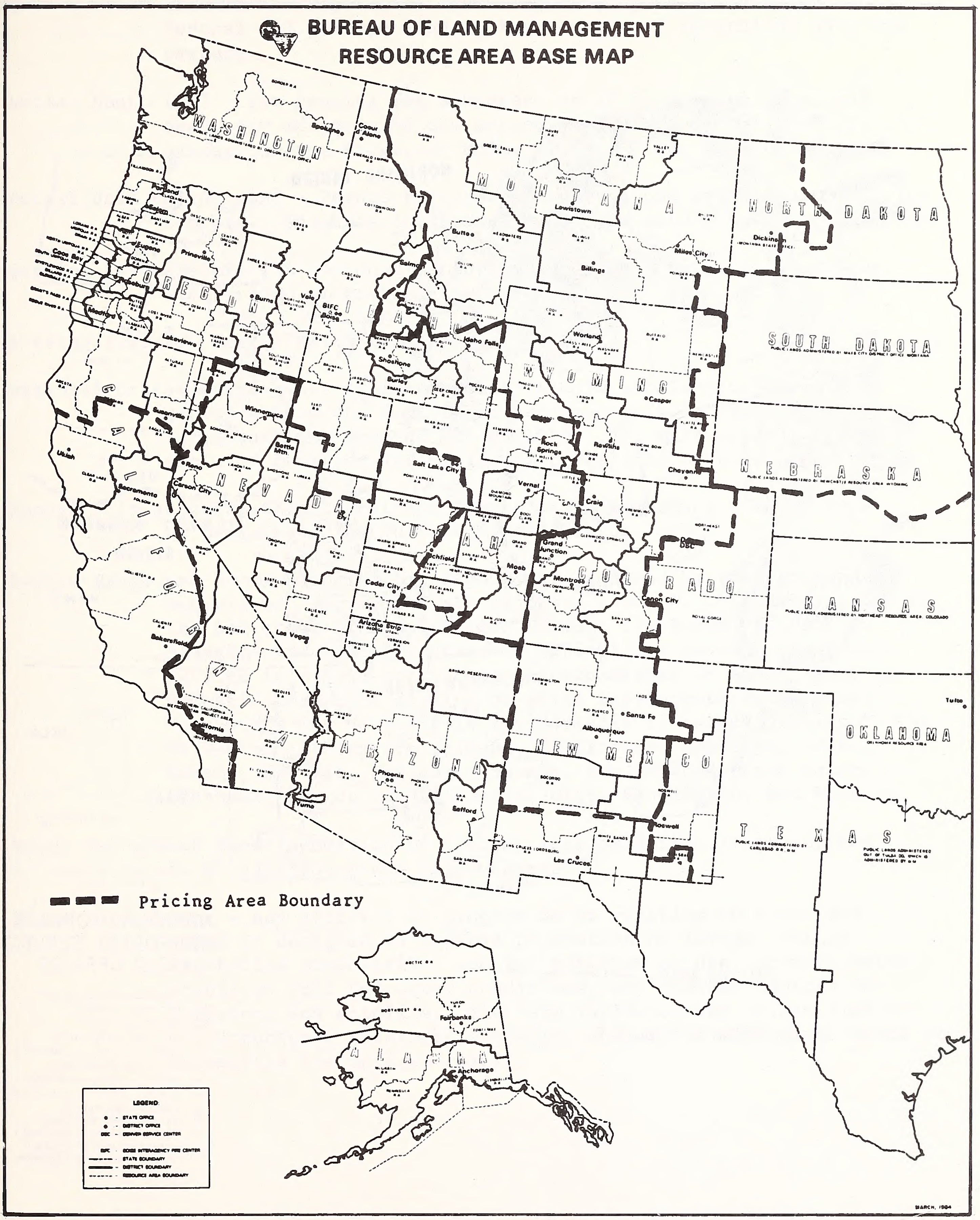
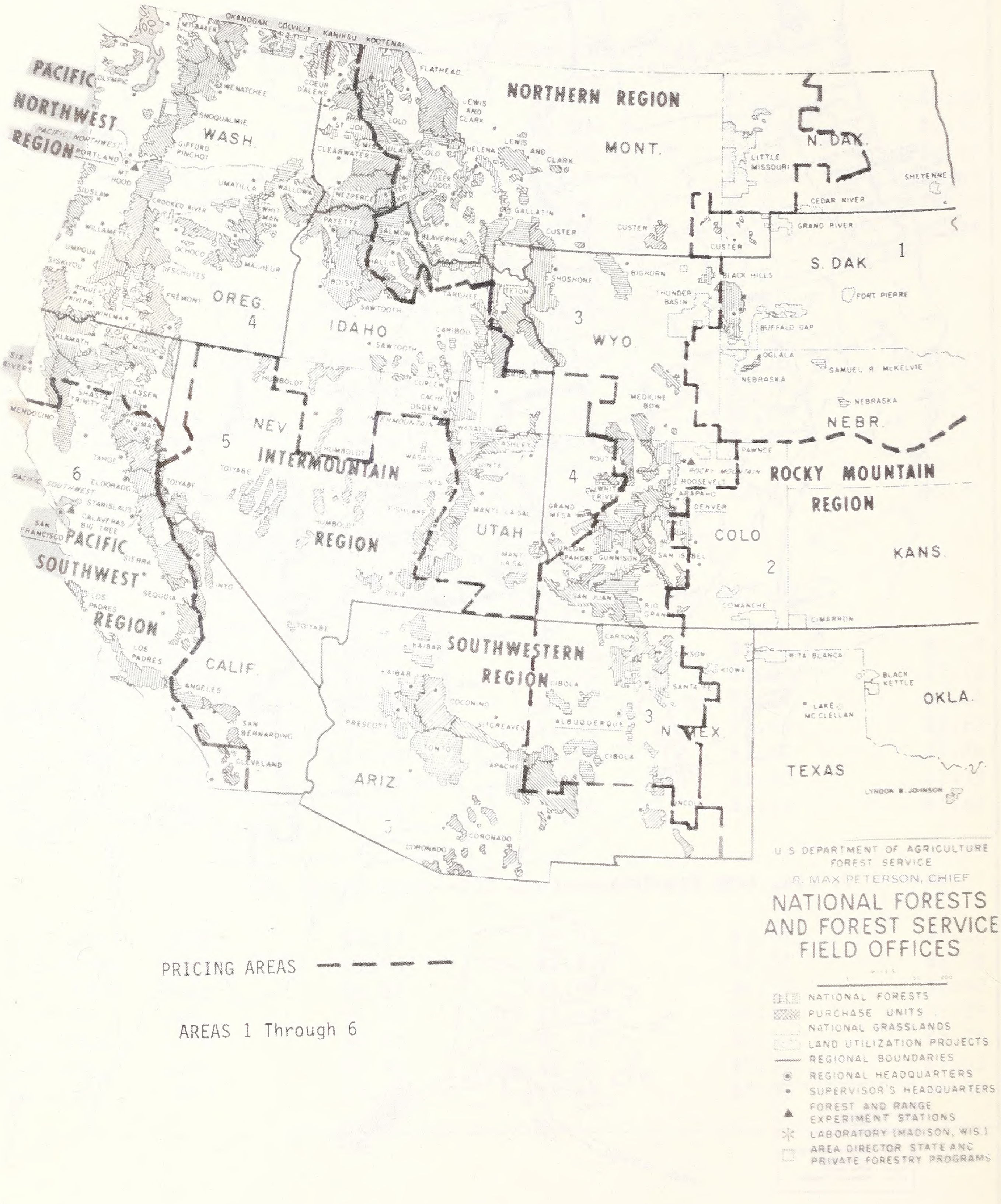


Figure B.22 Forest Service Administrative Units in Relationship to Pricing Areas



GLOSSARY

Allotment - An area designated for the use of a prescribed number and kind of livestock. May be all Federal ownership or any combination of Federal and private lands. May consist of several or only one pasture.

Animal Month (AM) - For grazing fee purposes, an AM is a month's use and occupancy of range by one weaned or adult cow, bull, steer, heifer, horse, burro, or mule, or five sheep or five goats.

Animal Unit Month (AUM) - Forage required to sustain one animal unit (AU) for 1 month. An AU is considered to be one mature cow or equivalent.

Grazing Lease/Permit - A document authorizing use of the public lands for the purpose of grazing livestock.

Grazing Year/Fee Year - March 1 to February 28

National Grasslands - Lands administered by the Forest Service but are excluded from the definition of rangelands in the Public Rangelands Improvement Act of 1978. For that reason, they are excluded from the definition of rangelands in this report.

Nonuse - An authorization to refrain from grazing livestock without loss of preference for further consideration.

Public Rangelands - As used in this report, are defined by the Public Rangelands Improvement Act as those lands ". . . administered by the Secretary of the Interior through the Bureau of Land Management or the Secretary of Agriculture through the Forest Service in the 16 contiguous Western States on which there is domestic livestock grazing or which the Secretary concerned determines may be suitable for domestic livestock grazing." The 16 Western States are Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Utah, Washington, and Wyoming.

Range Betterment Funds - Portion of grazing fees paid that is prescribed to be used for range improvements.

Range Improvement - Any activity or program on or relating to rangelands which is designed to improve production of forage, change vegetation composition, control patterns of use, provide water, stabilize soil and water conditions, and provide habitat for livestock and wildlife. The term includes, but is not limited to, structure, treatment projects, and use of mechanical means to accomplish the desired result.

Take-ins - Private lands lease arrangements where lessor also provides day to day care of livestock

Term Permit - A document authorizing grazing for a stated number of years (usually 10) as contrasted to an annual or temporary permit.

Westwide - As used in the report refers to the 16 Western States inclusive.

Yearlings - Weaned cattle (both sexes) over 6 and under 18 months of age.

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